Print Vendor Instructions

How to use this file

Operator's Manuals

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Covers:
- FRONT COVER is present at the beginning of the file.
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- The body for all manuals is identical regardless of the cover.
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General:
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Simplicity MASSEY FERGUSON AGCO

OPERATOR'S MANUAL

Regent / 500 / 2500 Series

18HP Hydro Tractors

Mfg. No.	Description
1694656	Regent, 18HP Hydro
1694659	Regent, 18HP Hydro (CE)
1694660	518H, 18HP Hydro
1694665	2518H, 18HP Hydro
1694749	Regent, 18HP Hydro
1694750	518H, 18HP Hydro
1694751	2518H, 18HP Hydro
1694802	Regent, 18HP Hydro
1694894	2518H, 18HP Hydro (CE)
1694903	Regent, 18HP Hydro (CE)
1694925	2518H, 18HP Hydro
2690322	Regent, 18HP Hydro & 38" Mower Deck
2690323	Regent, 18HP Hydro & 44" Mower Deck
2690326	Regent, 18HP Hydro
2690327	518H, 18HP Hydro & 38" Mower Deck
2690328	518H, 18HP Hydro & 44" Mower Deck
2690332	2518H, 18HP Hydro & 44" Mower Deck
2690336	2518H, 18HP Hydro & 38" Mower Deck
2690357	Regent, 18HP Hydro & 38" Mower Deck
2690358	518H, 18HP Hydro & 38" Mower Deck
2690359	2518H, 18HP Hydro & 38" Mower Deck
2690397	Regent, 18HP Hydro
2690426	Regent, 18HP Hydro (CE) & 44" Mower Deck

18HP Hydro Tractors

Mfg. No.	Description
2690446	2518H, 18HP Hydro (CE) & 40" Mower Deck
2690453	Regent, 18HP Hydro
2690480	2518H, 18HP Hydro & 40" Mower Deck

38" Mower Decks

Mfg. No.	Description
1693792	38" Mower Deck
1693794	38" Mower Deck (CE)
1693960	38" Mower Deck

40" Mower Decks

Mfg. No.	Description
1694333	40" Mower Deck
1694334	40" Mower Deck (CE)
1694377	40" Mower Deck (CE)

44" Mower Decks

Mfg. No.	Description
1693795	44" Mower Deck
1693885	44" Mower Deck (CE)
1693961	44" Mower Deck

1726999
Revision 06
Revision Date 11/2005
TP 100-4089-06-RG-SMA

Simplicity

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Lawn Care & Mowing Information .....LC—1

NOTE: In this manual, “left” and “right” are referred to as seen from the operating position.

⚠ WARNING

Engine exhaust from this product contains chemicals known, in certain quantities, to cause cancer, birth defects, or other reproductive harm.

Safety Rules & Information

Read these safety rules and follow them closely. Failure to obey these rules could result in loss of control of unit, severe personal injury or death to you, or bystanders, or damage to property or equipment.
This mowing deck is capable of amputating hands and feet and throwing objects.
The triangle ⚠ in text signifies important cautions or warnings which must be followed.

GENERAL OPERATION

1. Read, understand, and follow all instructions in the manual and on the unit before starting.
2. Do not put hands or feet near rotating parts or under the machine. Keep clear of the discharge opening at all times.
3. Only allow responsible adults, who are familiar with the instructions, to operate the unit (local regulations can restrict operator age).
4. Clear the area of objects such as rocks, toys, wire, etc., which could be picked up and thrown by the blade(s).
5. Be sure the area is clear of other people before mowing. Stop the unit if anyone enters the area.
6. Never carry passengers.
7. Do not mow in reverse unless absolutely necessary. Always look down and behind before and while travelling in reverse.
8. Never direct discharge material toward anyone. Avoid discharging material against a wall or obstruction. Material may ricochet back toward the operator. Stop the blade(s) when crossing gravel surfaces.
9. Do not operate the machine without the entire grass catcher, discharge guard (deflector), or other safety devices in place.
10. Slow down before turning.
11. Never leave a running unit unattended. Always disengage the PTO, set parking brake, stop engine, and remove keys before dismounting.
12. Disengage blades (PTO) when not mowing. Shut off engine and wait for all parts to come to a complete stop before cleaning the machine, removing the grass catcher, or unclogging the discharge guard.
13. Operate the machine only in daylight or good artificial light.
14. Do not operate the unit while under the influence of alcohol or drugs.
15 Watch for traffic when operating near or crossing roadways.
16. Use extra care when loading or unloading the unit into a trailer or truck.
17. Always wear eye protection when operating this unit.
18. Data indicates that operators, age 60 years and above, are involved in a large percentage of power equipment-related injuries. These operators should evaluate their ability to operate the equipment safely enough to protect themselves and others from injury.
19. Follow the manufacturer's recommendations for wheel weights or counterweights.
20. Keep in mind the operator is responsible for accidents occurring to other people or property.
21. All drivers should seek and obtain professional and practical instruction.
22. Always wear substantial footwear and trousers. Never operate when barefoot or wearing sandals.
23. Before using, always visually check that the blades and blade hardware are present, intact, and secure. Replace worn or damaged parts.
24. Disengage attachments before: refueling, removing an attachment, making adjustments (unless the adjustment can be made from the operator's position).
25. When the machine is parked, stored, or left unattended, lower the cutting means unless a positive mechanical lock is used.
26. Before leaving the operator's position for any reason, engage the parking brake (if equipped), disengage the PTO, stop the engine, and remove the key.
27. To reduce fire hazard, keep the unit free of grass, leaves, & excess oil. Do not stop or park over dry leaves, grass, or combustible materials.
28. It is a violation of California Public Resource Code Section 4442 to use or operate the engine on or near any forest-covered, brush-covered, or grass-covered land unless the exhaust system is equipped with a spark arrester meeting any applicable local or state laws. Other states or federal areas may have similar laws.

TRANSPORTING AND STORAGE

1. When transporting the unit on an open trailer, make sure it is facing forward, in the direction of travel. If the unit is facing backwards, wind lift could damage the unit.
2. Always observe safe refueling and fuel handling practices when refueling the unit after transportation or storage.
3. Never store the unit (with fuel) in an enclosed poorly ventilated structure. Fuel vapors can travel to an ignition source (such as a furnace, water heater, etc.) and cause an explosion. Fuel vapor is also toxic to humans and animals.
4. Always follow the engine manual instructions for storage preparations before storing the unit for both short and long term periods.
5. Always follow the engine manual instructions for proper start-up procedures when returning the unit to service.
6. Never store the unit or fuel container inside where there is an open flame or pilot light, such as in a water heater. Allow unit to cool before storing.

SLOPE OPERATION

Slopes are a major factor related to loss-of-control and tip-over accidents, which can result in severe injury or death. Operation on all slopes requires extra caution. If you cannot back up the slope or if you feel uneasy on it, do not operate on it.

Control of a walk-behind or ride-on machine sliding on a slope will not be regained by the application of the brake. The main reasons for loss of control are: insufficient tire grip on the ground, speed too fast, inadequate braking, the type of machine is unsuitable for its task, lack of awareness of the ground conditions, incorrect hitching and load distribution.

1. Mow up and down slopes, not across.
2. Watch for holes, ruts, or bumps. Uneven terrain could overturn the unit. Tall grass can hide obstacles.
3. Choose a slow speed so that you will not have to stop or change speeds while on the slope.
4. Do not mow on wet grass. Tires may loose traction.
5. Always keep unit in gear especially when traveling down slopes. Do not shift to neutral and coast downhill.
6. Avoid starting, stopping, or turning on a slope. If tires lose traction, disengage the blade(s) and proceed slowly straight down the slope.
7. Keep all movement on slopes slow and gradual. Do not make sudden changes in speed or direction, which could cause the machine to rollover.
8. Use extra care while operating machines with grass catchers or other attachments; they can affect the stability of the unit. Do not use on steeps slopes.
9. Do not try to stabilize the machine by putting your foot on the ground (ride-on units).
10. Do not mow near drop-offs, ditches, or embankments. The mower could suddenly turn over if a wheel is over the edge of a cliff or ditch, or if an edge caves in.
11. Do not use grass catchers on steep slopes.
12. Do not mow slopes you cannot back up them.
13. See your authorized dealer/retailer for recommendations of wheel weights or counterweights to improve stability.
14. Remove obstacles such as rocks, tree limbs, etc.
15. Use slow speed. Tires may lose traction on slopes even through the brakes are functioning properly.
16. Do not turn on slopes unless necessary, and then, turn slowly and gradually downhill, if possible.

TOWED EQUIPMENT (RIDE-ON UNITS)

1. Tow only with a machine that has a hitch designed for towing. Do not attach towed equipment except at the hitch point.
2. Follow the manufacturer's recommendations for weight limit for towed equipment and towing on slopes.
3. Never allow children or others in or on towed equipment.
4. On slopes, the weight of the towed equipment may cause loss of traction and loss of control.
5. Travel slowly and allow extra distance to stop.
6. Do not shift to neutral and coast down hill.

⚠ WARNING

Never operate on slopes greater than 17.6 percent (10°) which is a rise of 3-1/2 feet (106 cm) vertically in 20 feet (607 cm) horizontally.

When operating on slopes use additional wheel weights or counterweights. See your dealer/retailer to determine which weights are available and appropriate for your unit.

Select slow ground speed before driving onto slope. In addition to front weights, use extra caution when operating on slopes with rear-mounted grass catchers.

Mow UP and DOWN the slope, never across the face, use caution when changing directions and DO NOT START OR STOP ON SLOPE.

CHILDREN

Tragic accidents can occur if the operator is not alert to the presence of children. Children are often attracted to the unit and the mowing activity. Never assume that children will remain where you last saw them.

1. Keep children out of the mowing area and under the watchful care of another responsible adult.
2. Be alert and turn unit off if children enter the area.
3. Before and during reverse operation, look behind and down for small children.
4. Never carry children, even with the blade(s) off. They may fall off and be seriously injured or interfere with safe unit operation. Children who have been given rides in the past may suddenly appear in the mowing area for another ride and be run over or backed over by the machine.
5. Never allow children to operate the unit.
6. Use extra care when approaching blind corners, shrubs, trees, or other objects that may obscure vision.

EMISSIONS

1. Engine exhaust from this product contains chemicals known, in certain quantities, to cause cancer, birth defects, or other reproductive harm.
2. Look for the relevant Emissions Durability Period and Air Index information on the engine emissions label.

IGNITION SYSTEM

1. This spark ignition system complies with Canadian ICES-002.

SERVICE AND MAINTENANCE

Safe Handling of Gasoline

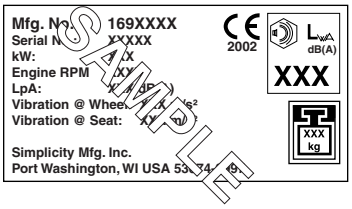
1. Extinguish all cigarettes, cigars, pipes, and other sources of ignition.
2. Use only approved gasoline containers.
3. Never remove the gas cap or add fuel with the engine running. Allow the engine to cool before refueling.
4. Never fuel the machine indoors.
5. Never store the machine or fuel container where there is an open flame, spark, or pilot light such as near a water heater or other appliance.
6. Never fill containers inside a vehicle or on a truck bed with a plastic bed liner. Always place containers on the ground away from your vehicle before filling.
7. Remove gas-powered equipment from the truck or trailer and refuel it on the ground. If this is not possible, then refuel such equipment on a trailer with a portable container, rather than from a gasoline dispenser nozzle.
8. Keep nozzle in contact with the rim of the fuel tank or container opening at all times until fueling is complete. Do not use a nozzle lock-open device.
9. If fuel is spilled on clothing, change clothing immediately.
10. Never over-fill the fuel tank. Replace gas cap and tighten securely.
11. Use extra care in handling gasoline and other fuels. They are flammable and vapors are explosive.
12. If fuel is spilled, do not attempt to start the engine but move the machine away from the area of spillage and avoid creating any source of ignition until fuel vapors have dissipated.
13. Replace all fuel tank caps and fuel container caps securely.

Service & Maintenance

1. Never run the unit in an enclosed area where carbon monoxide fumes may collect.
2. Keep nuts and bolts, especially blade attachment bolts, tight and keep equipment in good condition.
3. Never tamper with safety devices. Check their proper operation regularly and make necessary repairs if they are not functioning properly.
4. Keep unit free of grass, leaves, or other debris build-up. Clean up oil or fuel spillage. and remove any fuel-soaked debris. Allow machine to cool before storage.
5. If you strike an object, stop and inspect the machine. Repair, if necessary, before restarting.
6. Never make adjustments or repairs with the engine running.
7. Check grass catcher components and the discharge guard frequently and replace with manufacturer's recommended parts, when necessary.
8. Mower blades are sharp. Wrap the blade or wear gloves, and use extra caution when servicing them.
9. Check brake operation frequently. Adjust and service as required.
10. Maintain or replace safety and instructions labels, as necessary.
11. Do not remove the fuel filter when the engine is hot as spilled gasoline may ignite. Do not spread fuel line clamps further than necessary. Ensure clamps grip hoses firmly over the filter after installation.
12. Do not use gasoline containing METHANOL, gasohol containing more than 10% ETHANOL, gasoline additives, or white gas because engine/fuel system damage could result.
13. If the fuel tank must be drained, it should be drained outdoors.
14. Replace faulty silencers/mufflers.
15. Maintain or replace safety and instruction labels as necessary.
16. Use only factory authorized replacement parts when making repairs.
17. Always comply with factory specifications on all settings and adjustments.
18. Only authorized service locations should be utilized for major service and repair requirements.
19. Never attempt to make major repairs on this unit unless you have been properly trained. Improper service procedures can result in hazardous operation, equipment damage and voiding of manufacturer's warranty.
20. On multiple blade mowers, take care as rotating one blade can cause other blades to rotate.
21. Do not change engine governor settings or overspeed the engine. Operating the engine at excessive speed can increase the hazard of personal injury.
22. Disengage drive attachments, stop the engine, remove the key, and disconnect the spark plug wire(s) before: clearing attachment blockages and chutes, performing service work, striking an object, or if the unit vibrates abnormally. After striking an object, inspect the machine for damage and make repairs before restarting and operating the equipment.
23. Never place hands near the moving parts, such as a hydro pump cooling fan, when the tractor is running. (Hydro pump cooling fans are typically located on top of the transaxle).
24. Units with hydraulic pumps, hoses, or motors: WARNING: Hydraulic fluid escaping under pressure may have sufficient force to penetrate skin and cause serious injury. If foreign fluid is injected into the skin it must be surgically removed within a few hours by a doctor familiar with this form of injury or gangrene may result. Keep body and hands away from pin holes or nozzles that eject hydraulic fluid under high pressure. Use paper or cardboard, and not hands, to search for leaks. Make sure all hydraulic fluid connections are tight and all hydraulic hoses and lines are in good condition before applying pressure to the system. If leaks occur, have the unit serviced immediately by your authorized dealer.
25. WARNING: Stored energy device. Improper release of springs can result in serious personal injury. Springs should be removed by an authorized technician.
26. Models equipped with an engine radiator: WARNING: Stored energy device. To prevent serious bodily injury from hot coolant or steam blow-out, never attempt to remove the radiator cap while the engine is running. Stop the engine and wait until it is cool. Even then, use extreme care when removing the cap.

Identification Numbers

North American Models



CE Models

When contacting your authorized dealer for replacement parts, service, or information you MUST have these numbers.

Record your model name/number, manufacturer's identification numbers, and engine serial numbers in the space provided for easy access. These numbers can be found in the locations shown.

NOTE: For location of engine identification numbers, refer to the engine owner's manual.

CE Models: Place the extra copy of the identification tag in the manual

CE IDENTIFICATION TAG MARKINGS

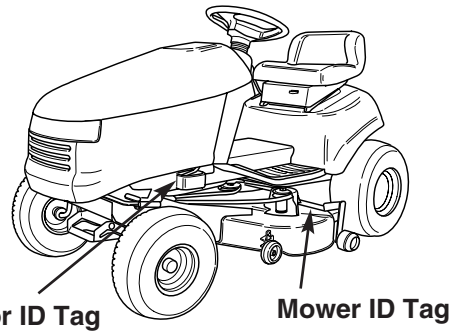
A. Manufacturer's Identification Number
B. Manufacturer's Serial Number
C. Power Rating in Kilowatts
D. Maximum Engine Speed in Rotations per Minute
E. Manufacturer's Address
F. Year of Manufacture
G. CE Compliance Logo
H. Mass of Unit in Kilograms
I. Sound Power in Decibels ***
J. Sound Pressure at Operator's Position in Decibels **
K. Vibration at the Steering Wheel *
L. Vibration at the Seat *

This unit complies with European Harmonized Lawn Mower Standard EN 836, European Machinery Directive 98/37/EC, and European EMC Directive 89/336/EC

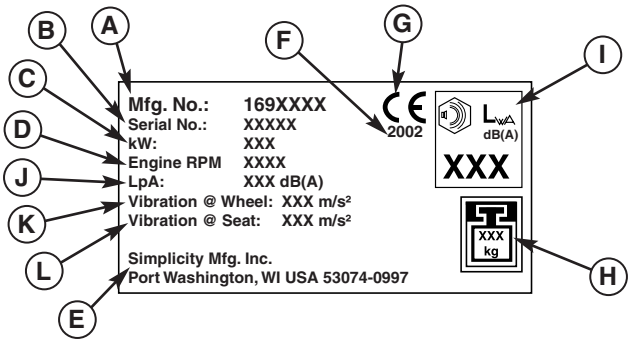
* Tested according to EN 836:1997/A2:2001, EN 1032: 1996, EN 1033:1995

** Tested according to EN836:1997/A2:2001

*** Tested according to 2000/14/EC



PRODUCT REFERENCE DATA	
Model Description Name/Number	
Unit MFG Number	Unit SERIAL Number
Mower Deck MFG Number	Mower Deck SERIAL Number
Dealer Name	Date Purchased
ENGINE REFERENCE DATA	
Engine Make	Engine Model
Engine Type/Spec	Engine Code/Serial Number



CE Models:
Place copy of
Identification Tag here.

SAFETY DECALS

This unit has been designed and manufactured to provide you with the safety and reliability you would expect from an industry leader in outdoor power equipment manufacturing.

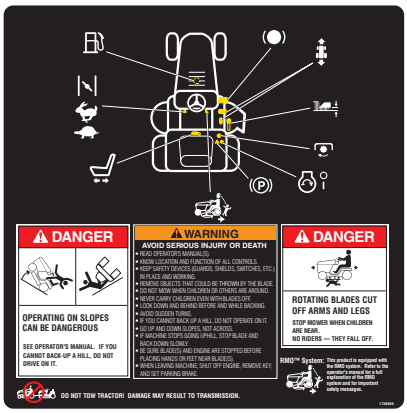
Although reading this manual and the safety instructions it contains will provide you with the necessary basic knowledge to operate this equipment safely and effectively, we have placed several safety labels on the unit to remind you of this important information while you are operating your unit.

All DANGER, WARNING, CAUTION and instructional messages on your rider and mower should be carefully read and obeyed. Personal bodily injury can result when these instructions are not followed. The information is for your safety and it is important! The safety decals below are on your rider and mower.

If any of these decals are lost or damaged, replace them at once. See your local dealer for replacements.

These labels are easily applied and will act as a constant visual reminder to you, and others who may use the equipment, to follow the safety instructions necessary for safe, effective operation.

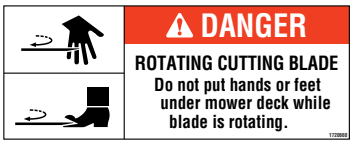
NORTH AMERICAN MODEL DECALS


DANGER
OPERATING ON SLOPES CAN BE DANGEROUS
SEE OPERATOR'S MANUAL. IF YOU CANNOT BACK-UP A HILL, DO NOT DRIVE ON IT.
WARNING
AVOID SERIOUS INJURY OR DEATH
DANGER
ROTATING BLADES CUT OFF ARMS AND LEGS
STOP MOWER WHEN CHILDREN ARE NEAR.
NO RIDERS — THEY FALL OFF.
DO NOT TOW TRACTOR! DAMAGE MAY RESULT TO TRANSMISSION.

Decal - North American Operating Instructions
Part No. 1726986

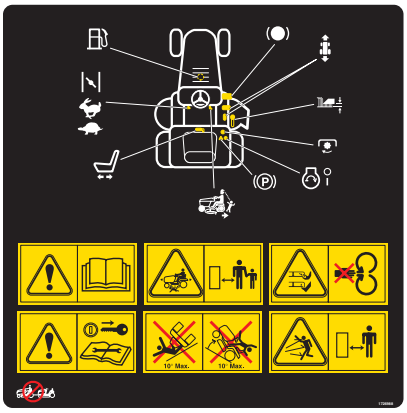
Decal - Danger
Part No. 1704276

Decal - Danger
Part No. 1704277

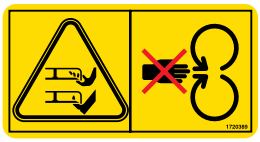


Decal - Danger, Mulching Models
Part No. 1720389

CE MODEL DECALS



Decal - CE Operating Instructions
Part No. 1726988



Decal - Danger, Rotating Blades
Part No. 1720389

ALL MODELS

Decal - Hydro Release Valve
Part No. 1719635

Decal - Cutting Height, (Mulching Models)
Part No. 1723470

SAFETY ICONS

Warning: Read Operator's Manual.

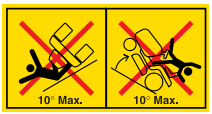
Read and understand the Operator's Manual before using this machine.

Danger: Thrown Objects.

This machine is capable of throwing objects and debris. Keep bystanders away.

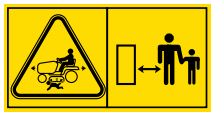
Danger: Machine Rollover.

Do not use this machine on slopes greater than 10°.



Danger: Dismemberment.

This machine can amputate limbs. Keep bystanders and children away when engine is running.



Danger: Dismemberment.

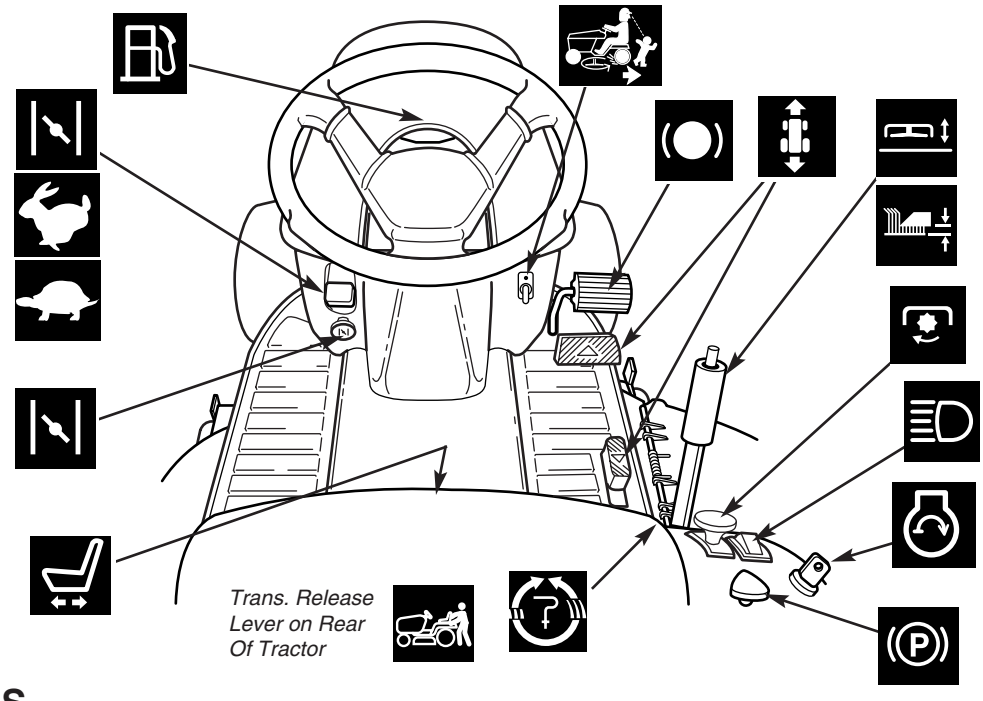
This mower deck can amputate limbs. Keep hands and feet away from blades.

Danger: Remove Key & Read Manual Before Servicing

Remove the key and read the operator's manual before performing service procedures involving components in this area.

Features & Controls

Please take a moment and familiarize yourself with the name, location, and function of these controls *so that you will better understand the safety and operating instructions provided in this manual.*



CONTROL FUNCTIONS

The information below briefly describes the function of individual controls. Starting, stopping, driving, and mowing require the combined use of several controls applied in specific sequences. To learn what combination and sequence of controls to use for various tasks see the OPERATION section.

Throttle/Choke Control

(Single Lever Models)

The throttle/choke lever controls engine speed and choke. Move the throttle forward to increase engine speed and back to decrease engine speed. Always operate at FULL throttle. Move the control fully forward (past the detent) to close the choke. Close the choke for cold starting. Open the choke once the engine starts. A warm engine may not require choking.

Throttle Control

(Twin Lever Models)

The throttle controls engine speed. Move the throttle forward to increase engine speed and back to decrease engine speed. Always operate at FULL throttle.

Choke

(Twin Lever Models)

Close the choke for cold starting. Open the choke once the engine starts. A warm engine may not require choking. Move the lever forward to close the choke.

Headlights

The light switch turns the tractor headlights on and off.

PTO Switch

The PTO (Power Take-Off) switch engages and disengages attachments that use the PTO. To engage the PTO, pull UP on the switch. Push DOWN to disengage. *Note that the operator must be seated firmly in the tractor seat for the PTO to function.*

Ignition Switch

The ignition switch starts and stops the engine, it has three positions:

OFF	Stops the engine and shuts off the electrical system.
RUN	Allows the engine to run and powers the electrical system.
START	Cranks the engine for starting.

NOTE: Never leave the ignition switch in the RUN position with the engine stopped–this drains the battery.

Brake Pedal

Depressing the brake pedal applies the tractor brake.

Ground Speed Pedals

The tractor's forward ground speed is controlled by the forward ground speed control pedal. The tractor's reverse ground speed is controlled by the reverse ground speed control pedal.

Depressing either pedal will increase ground speed. Note that the further down the pedal is depressed, the faster the tractor will travel.

Parking Brake

The parking brake knob is used to lock the parking brake when the tractor is stopped. Fully depressing the brake pedal and pulling up on the knob engages the parking brake. Refer to page 10 for a full explanation of parking brake functions.

Mower Height of Cut Adjustment

When using the mower deck, lift the deck off the ground while transporting to and from the job site. **DO NOT** cut with the mower in the raised, transport position.

38" & 44" MOWER DECKS

The cutting height adjustment knob controls the mower cutting height. The cutting height is infinitely adjustable between 1" and 3-5/8."

40" MOWER DECKS

The cutting height adjustment lever controls the mower cutting height. Push down on the button to release the lever, move to the desired cutting height, and release the button to lock. The cutting height is infinitely adjustable between 1" and 3-5/8."

Cutting Height Fine Tuning Adjustment (40" Mower Decks Only)

The cutting height fine tuning adjustment is used to set the mower cutting height between two of the preset cutting positions.

Seat Adjustment Lever

The seat can be adjusted forward and back. Move the lever, position the seat as desired, and release the lever to lock the seat into position.

Transmission Release Valve Lever

The transmission release valve lever deactivates the transmission so that the tractor can be pushed by hand. See PUSHING THE TRACTOR BY HAND for operational information.

Fuel Tank

To remove the cap, turn counterclockwise. On models with a dashboard display, the fuel gauge is part of the dashboard. Model without a dashboard display have a fuel gauge located under the seat.

Attachment Lift Control Lever

When using the mower deck, lift the deck off the ground while transporting to and from the job site. **DO NOT** cut with the mower in the raised, transport position.

The attachment lift control lever raises and lowers attachments that utilize the tractor's manual lift linkage. To lower an attachment: pull the lever back slightly, depress the release button, and push the lever forward until it locks in the lowered position. To raise an attachment: push the lever forward slightly, depress the release button, then pull the lever back until it locks in the raised position.

Reverse Mowing Option (RMO)

The Reverse Mowing Option allows for mowing (or use of other PTO driven attachments) while traveling in reverse. If you choose to mow or operate another attachment in reverse, turn the RMO key after the PTO is engaged. The L.E.D. light will illuminate, and the operator can then mow in reverse. Each time the PTO is disengaged the RMO needs to be reactivated if desired.

PARKING BRAKE FUNCTION

Applying the Parking Brake - See Figure 1. To lock the parking brake, release the ground speed pedals (A), fully depress the brake pedal (B), pull UP on the parking brake knob (C), and then release brake pedal.

Releasing the Parking Brake - See Figure 1. To release the parking brake, fully depress the brake pedal (B) and push the parking brake knob (C) DOWN.

IMPORTANT NOTE: The tractor's hydraulic attachment lift will not work when the parking brake is engaged.

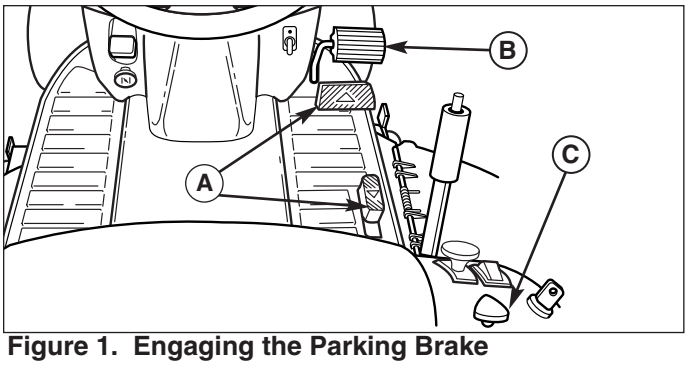


Figure 1. Engaging the Parking Brake
A. Ground Speed Pedals C. Parking Brake Knob
B. Brake Pedal

SAFETY INTERLOCK SYSTEM TESTS

This unit is equipped with safety interlock switches and other safety devices. These safety systems are present for your safety: do not attempt to bypass safety switches, and never tamper with safety devices. Check their operation regularly.

Operational SAFETY Checks

Your unit is equipped with a seat switch safety system. Check the seat switch operation every fall and spring with the following tests.

Test 1 — Engine should NOT crank if:

- PTO switch is ON, OR
- Brake pedal is NOT fully depressed (parking brake OFF), OR
- The cruise control lever is NOT in NEUTRAL.

Test 2 — Engine SHOULD crank if:

- PTO switch is OFF, AND
- Brake pedal is fully depressed (parking brake ON), AND
- The cruise control lever is in NEUTRAL.

Test 3 — Engine should SHUT OFF if:

- Operator rises off seat with PTO engaged, OR
- Operator rises off seat with brake pedal NOT fully depressed (parking brake OFF).

Test 4 — Blade Brake Check

Mower blades and mower drive belt should come to a complete stop within five seconds after electric PTO switch is turned OFF (or operator rises off seat). If mower drive belt does not stop within five seconds, readjust the PTO clutch as described in the ADJUSTMENTS section or see your dealer.

Test 5 — Reverse Mow Option (RMO) Check

- Engine should shut off if reverse travel is attempted if the PTO has been switched on and RMO has not been activated.
- RMO light should illuminate when RMO has been activated.

NOTE: Once the engine has stopped, the PTO switch must be turned off after the operator returns to the seat in order to start the engine.

WARNING

If the unit does not pass a safety test, do not operate it. See your authorized dealer. Under no circumstance should you attempt to defeat the purpose of the safety interlock system.

GENERAL OPERATING SAFETY

Be sure to read all information in the Safety and Operation sections before attempting to operate this unit. Become familiar with all of the controls and how to stop the unit.

ADDING FUEL

To add fuel:

1. Remove the fuel cap.
2. Fill the tank. Do not overfill. Leave room in the tank for fuel expansion. Refer to your engine manual for specific fuel recommendations.
3. Install and hand tighten the fuel cap.

STARTING THE ENGINE

Do not use gasoline containing METHANOL, gasohol containing more than 10% ETHANOL, gasoline additives, or white gas because engine/fuel system damage could result.

WARNING

Gasoline is highly flammable and must be handled with care. Never fill the tank when the engine is still hot from recent operation. Do not allow open flame, smoking or matches in the area. Avoid over-filling and wipe up any spills.

1. While sitting in the operator's seat, fully depress the brake pedal or set the parking brake.
2. Make sure that your feet are not depressing the ground speed control pedals and that the cruise control lever is in neutral.
3. Disengage the PTO clutch.
4. Set the throttle to FULL.
5. Close the choke.

NOTE: A warm engine may not require choking.

6. Insert the ignition key and turn it to START.
7. After the engine starts, move the engine throttle control to SLOW. Warm up the engine by running it for at least a minute.
8. Set throttle to FULL.

NOTE: In the event of an emergency the engine can be stopped by simply turning the ignition switch to STOP. Use this method only in emergency situations. For normal engine shut down follow the procedure given in STOPPING THE TRACTOR.

STOPPING THE TRACTOR & ENGINE

1. Return the ground speed control(s) to neutral.
2. Disengage the PTO and wait for all moving parts to stop.
3. Place the throttle control in the position specified in the engine owner's manual provided in the operator's packet shipped with your tractor. Follow any recommended stopping procedures.
4. Turn the ignition switch to OFF. Remove the key.

DRIVING THE TRACTOR

1. Sit in the seat and adjust the seat so that you can comfortably reach all the controls and see the dashboard display.
2. Engage the parking brake.
3. Make sure the PTO switch is disengaged.
4. Start the engine (see STARTING THE ENGINE).
5. Disengage the parking brake and release the brake pedal.
6. Depress the forward ground speed control pedal to travel forward. Release the pedal to stop. Note that the further down the pedal is depressed the faster the tractor will travel.
7. Stop the tractor by releasing the ground speed control pedals, setting the parking brake, and stopping the engine (see STOPPING THE TRACTOR AND ENGINE).

MOWING

1. Set the mower cutting height to the desired level and set the gauge wheels to the appropriate position (if equipped).
2. Engage the parking brake. Make sure the PTO switch is disengaged.
3. Start the engine (see STARTING THE ENGINE).
4. Fully lower the mower using the attachment lift lever.
5. Set the throttle to FULL.
6. Engage the PTO (Mower Deck).
7. Begin mowing. See Section C for tips on mowing patterns, lawn care, and troubleshooting information.
8. When finished, shut off the PTO and raise the mower using the attachment lift control lever.
9. Stop the engine (see STOPPING THE TRACTOR AND ENGINE).

⚠ WARNING

The engine will shut off if the reverse ground speed pedal is depressed while the PTO is on and the RMO has not been activated. The operator should always turn the PTO off prior to driving across on roads, paths or any area that maybe used by other vehicles. Sudden loss of drive could create a hazard

⚠ WARNING

Mowing in reverse can be hazardous to bystanders. Tragic accidents can occur if the operator is not alert to the presence of children. Never activate RMO if children are present. Children are often attracted to the unit and the mowing activity.

MOWING IN REVERSE

If an operator chooses to mow in reverse, the RMO system can be used. To use the Reverse Mowing Option (RMO) turn the RMO key after the PTO is engaged. The L.E.D. light will illuminate, and the operator can then mow in reverse. Each time the PTO is disengaged the RMO needs to be reactivated if desired. The key should be removed to restrict access to the RMO feature.

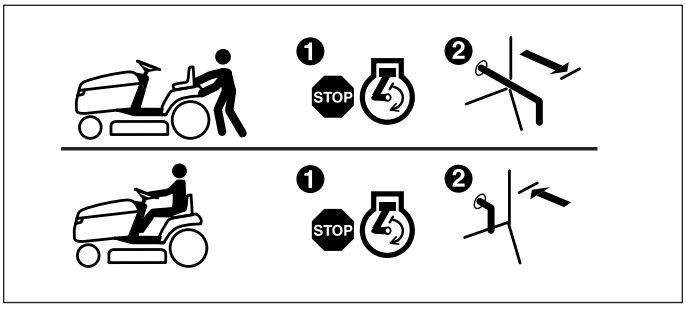
ATTACHMENT OPERATION IN REVERSE

If an operator chooses to operate a PTO driven attachment in reverse, the RMO system can be used. To use the Reverse Mowing Option (RMO) turn the RMO key after the PTO is engaged. The L.E.D. light will illuminate, and the operator can then operate the attachment in reverse. Each time the PTO is disengaged the RMO needs to be reactivated if desired. The key should be removed to restrict access to the RMO feature.

PUSHING THE TRACTOR BY HAND

1. Disengage the PTO and turn the engine off.
2. Pull the transmission release back approximately 2-1/2" (6 cm) to lock into released position (Figure 2).
3. The tractor can now be pushed by hand.

DO NOT TOW TRACTOR
Towing the unit will cause transmission damage. • Do not use another vehicle to push or pull this unit. • Do not actuate the transmission release valve lever while the engine is running.



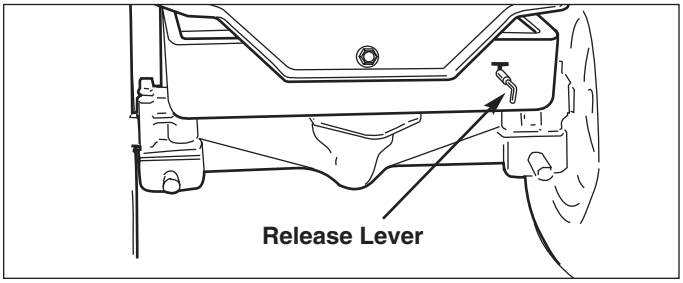


Figure 2. Release Lever - Hydro Models

USING A MULCHING MOWER

Benefits of Proper Mulching

Mulching consists of a mower deck which cuts and recuts clippings into tiny particles and then blows them down into the lawn. These tiny particles decompose rapidly into by-products that your lawn can use. Under proper conditions your mulching mower virtually eliminate noticeable clippings on the lawn surface.

Limitations of Mulching Decks

Mulching mowers cannot function properly if the grass is wet, or if the grass is simply too high. Even more than normal mowing, mulching requires that the grass be dry and no more than 1/3 of the height is cut.

Do not use the mower as a mulching mower during the first two or three cuttings in the spring. The long grass blades, quick growth, and often wetter conditions are more suitable for broadcasting (side-discharging).

Correct Ground Speed & Engine Speed

Use full engine throttle to maximize mower blade tip speed matched with a slow ground speed so that clippings will be finely cut. Ground speed while mulching should be half the speed used when broadcasting (side-discharging) under similar conditions. Since mulching requires more horse power that broadcasting, using a slower ground speed is vitally important for proper mulching operation.

Correct Cutting Height

Cutting off too much at one time shocks the plants growth system and weakens the grass plants. A good rule of thumb is the 1/3 rule: to cut no more than one third of the grass height, and never more than 1 inch at a time.

The best mulching action typically results from cutting only the top 1/2" to 3/4" of the grass blade. This provides short clippings which decompose properly (much more quickly than longer clippings). The ideal cutting height will vary with climate, time of year, and quality of your lawn. We recommend that you experiment with both the cutting height and ground speed to achieve the best cut. Start with a high cutting height and use progressively lower heights until you find a cutting height that is matched to your mowing conditions and preferences. For best results, overlapping is recommended.

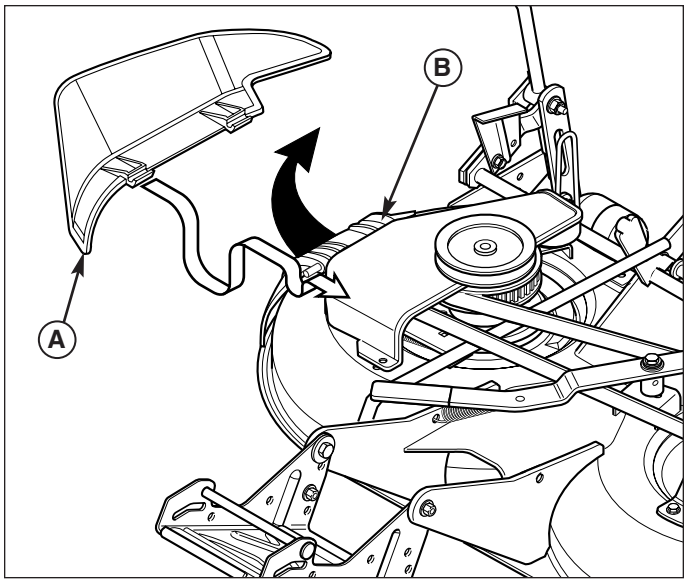


Figure 3. Installing the Side Discharge Deflector
A. Side Discharge Deflector
B. Mulching Cover

Using the Side Discharge Deflector

When to use the side discharge deflector: If you've been on vacation or missed a mowing and the grass has gotten very long, do not try to mulch at your normal cutting height. To handle these situations your mulching mower is equipped with a side discharge deflector. Installing the side discharge deflector allows you to broadcast clippings. Broadcasting, or side-discharging, disperses fine clippings evenly over the entire lawn. Many golf courses use this method. Your mower has a deep dish deck to allow freer circulation of clippings so they are broadcast evenly over the lawn.

Always operate the engine at full throttle. Use an appropriate ground speed for the thickness and height of grass you are cutting. If you hear the engine slowing down, you are mowing too fast, use a slower ground speed. Mow when the grass is 3"-5"long. Do not cut off more than 1" in a single pass.

⚠ WARNING

Never operate the mower deck without either the discharge chute or mulching deflector in place.

To install the side discharge chute:

1. Lift up the mulching cover (B, Figure 3).
2. Install the side discharge deflector (A) under the mulching cover. The side discharge deflector hooks onto the mulching cover hinge rod, and is held in place by the mulching cover.
3. Release the mulching cover.

MOWER INSTALLATION & REMOVAL

⚠ WARNING

Engage parking brake, disengage PTO, stop engine and remove key before attempting to install or remove the mower.

NOTE: Perform mower removal and installation on a hard, level surface such as a concrete floor.

1. Turn the front wheels of the tractor full left.
2. Place the mower in lowest cutting position.
3. Move lever (C, Figure 5) to release belt tension, then slide belt off of PTO pulley.
4. Remove clip (B, Figure 5) from the rod (A), and remove the rod.
5. Disconnect the front hitch by pulling out on the release rod (B, Figure 4) and lifting the mower hitch off the tractor hitch (A). Slide the mower deck out from under the right side of the tractor.
6. Install the mower in reverse order of removal.

NOTE: When installing rod (A, Figure 5), turning the front wheels slightly left or right helps to align the holes.

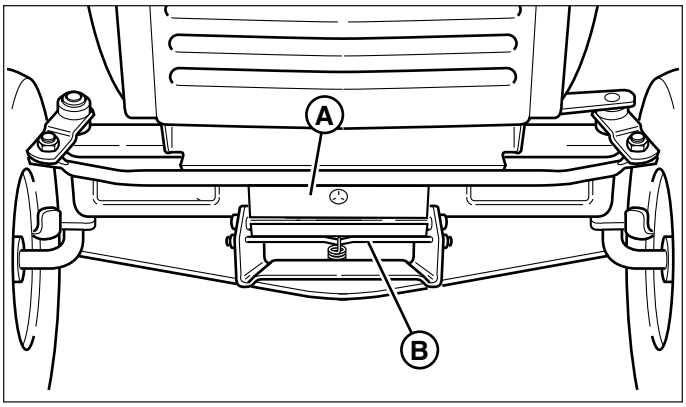


Figure 4. Front Hitch
A. Hitch **B. Release Rod**

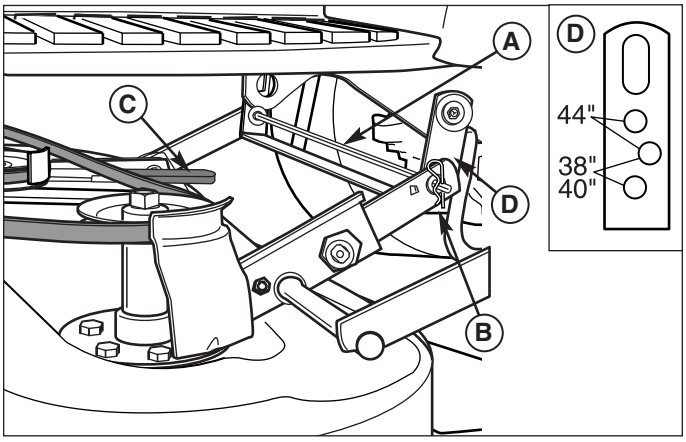


Figure 5. Mower Deck - Left Side (38” Deck Shown)
A. Rod **C. Lever**
B. Clip **D. U-Bracket**

ADJUSTING MOWER CUTTING HEIGHT & GAUGE WHEELS - 38” & 44”

NOTE: Perform adjustment on a hard, level surface such as a concrete floor.

1. Set the mower height adjustment lever (B, Figure 6) to the desired cutting height.
2. Remove the pin & clip (A, Figure 6) from each mower deck front gauge wheel.
3. Adjust the gauge wheels to achieve the appropriate mower deck-to-ground clearance, as shown in Figure 6. Reinstall pin & clip to each wheel. Between 3/4"- 1" with Height Adjuster Lever in lower 3 slots, 2" with Height Adjuster Lever in upper 3 slots

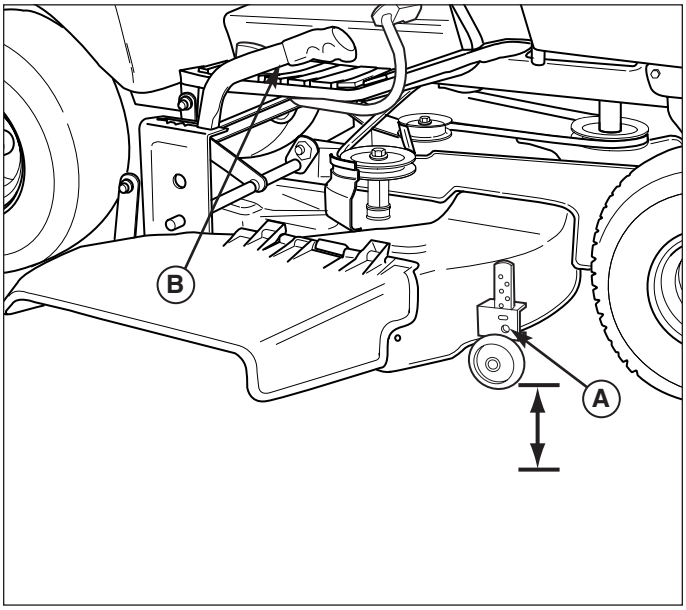


Figure 6. Mower Deck - Right Side
A. Pin & Clip
B. Height Adjustment Lever

ADJUSTING MOWER CUTTING HEIGHT 40”

The cutting height adjustment lever (A, Figure 7) controls the mower cutting height and has five positions. When using the mower deck, lift the deck off the ground while transporting to and from the job site. **DO NOT** cut with the mower in the raised, transport position. The lower four positions are used when mowing.

Set this lever so that the deck is cutting off 1/3 the height of the grass or less.

If the desired cutting height falls between two notches, use the cutting height fine tuning adjuster (B) to achieve the correct height.

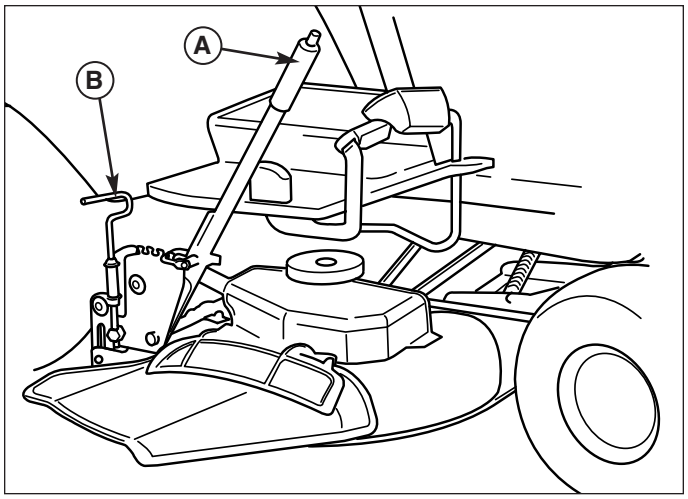


Figure 7. Mower Cutting Height Adjustment
A. Cutting Height Lever
B. Fine Tuning Adjustment

STORAGE

⚠ WARNING

Never store the unit (with fuel) in an enclosed, poorly ventilated structure. Fuel vapors can travel to an ignition source (such as a furnace, water heater, etc.) and cause an explosion.

Fuel vapor is also toxic to humans and animals.

Before you store your unit for the off-season, read the Maintenance and Storage instructions in the Safety Rules section, then perform the following steps:

- Disengage the PTO, set the parking brake, & remove the key.
- Perform engine maintenance and storage measures listed in the engine owner’s manual. This includes draining the fuel system, or adding stabilizer to the fuel (do not store a fueled unit in an enclosed structure - see above).
- Battery life will be increased if it is removed, put in a cool, dry place and fully charged about once a month. If the battery is left in the unit, disconnect the negative cable.

Before starting the unit after it has been stored:

- Check all fluid levels. Check all maintenance items.
- Perform all recommended check and procedures found in the engine owner’s manual.
- Allow the engine to warm up for several minutes before use.

Regular Maintenance

MAINTENANCE SCHEDULE

The following schedule should be followed for normal care of your tractor and mower. Use the hour meter to determine your operating time.

SAFETY ITEMS	Before Each Use	Every 5 Hours	Every 25 Hours	Every 100 Hours	Every 250 Hours	Spring & Fall
Check Safety Interlock System						●
Check Tractor Brakes						●
Check Mower Blade Stopping Time				●		●
TRACTOR MAINTENANCE ITEMS	**Before Each Use**	**Every 5 Hours**	**Every 25 Hours**	**Every 100 Hours**	**Every 250 Hours**	**Spring & Fall**
Check Tractor/Mower for loose hardware		●				
Check / Clean Cooling Fins				●		
Check / Adjust PTO Clutch			***●		●	
Lubricate Tractor & Mower **			●			
Lubricate Rear Axle Shafts						Yearly
Clean Battery & Cables				●		
Check Tire Pressure			●			
Clean Deck & Check/Replace Mower Blades **				●		
Perform Transmission Maint. (Varies by Model)					***●	
Check Mower Blade Timing (40” Mowers)						Yearly
Check Arbor Drive Belt Tension (40” Mowers)						Yearly
ENGINE MAINTENANCE ITEMS	**Before Each Use**	**Every 5 Hours**	**Every 25 Hours**	**Every 100 Hours**	**Every 250 Hours**	**Spring & Fall**
Check Engine Oil Level	●					
Check / Change Engine Air Filter	These procedures and their service intervals can be found in the engine manufacturer’s owner’s manual. Always refer to the engine manual for engine-related information.					
Change Engine Oil & Filter *						
Inspect Spark Plug(s)						
Check / Replace Fuel Filter						

* Change original engine oil after initial break-in period. Refer to engine owner’s manual.
** More often in hot (over 85° F: 30° C) weather or dusty operating conditions.
*** Service after the first 25 hours of operation, then every 250 hours of operation.

TIRE PRESSURE

Tire pressure should be checked periodically, and maintained at the levels shown in the chart at right. Note that these pressures differ slightly from the “Max Inflation” stamped on the side-wall of the tires. The pressures shown in the chart provide proper traction, improved cut quality, and extended tire life.

Tire	Pressure
Front	12 - 15 psi (82 - 103 kPa)
Rear	10 - 12 psi (56 - 82 kPa)

RAISING THE HOOD & SEAT

1. To raise the hood, grasp the hood recess (Figure 8) on top, then pivot the hood up and forward.
2. To raise the seat for battery access, tilt the seat forward.

⚠ CAUTION

Do not run the engine with the hood raised. Engine heat will cause damage to the headlight bezel and hood.

CHECKING FUEL FILTER

⚠ WARNING

Do not remove fuel filter when engine is hot, as spilled gasoline may ignite. DO NOT spread hose clamps further than necessary. Ensure clamps grip hoses firmly over filter after installation.

The fuel filter (C, Figure 9) is located in fuel line between fuel tank and carburetor. If filter is dirty or clogged, replace as follows. Place a container below filter to catch spilled gasoline.

1. Using a pliers, open and slide hose clamps from fuel filter.
2. Remove hoses from filter.
3. Install new filter in proper flow direction in fuel line. Secure with hose clamps. See warning at beginning of procedure.

SAFETY INTERLOCK SYSTEM CHECK

Service Interval: Every Fall & Spring

Check the function of the safety interlock system using the test procedure found on page 10 of this manual. If the tractor fails any of the tests, see your dealer.

BLADE BRAKE CHECK

Service Interval: Every 100 Hours or Fall & Spring

Mower blades and mower drive belt should come to a complete stop within five seconds after electric PTO switch is turned off.

1. With tractor in neutral, PTO disengaged and operator in seat, start the engine.
2. Look over the left-hand footrest at the mower drive belt. Engage the PTO and wait several seconds. Disengage the PTO and check the amount of time it takes for the mower drive belt to stop.
3. If mower drive belt does not stop within five seconds, re-adjust the clutch or see your dealer.

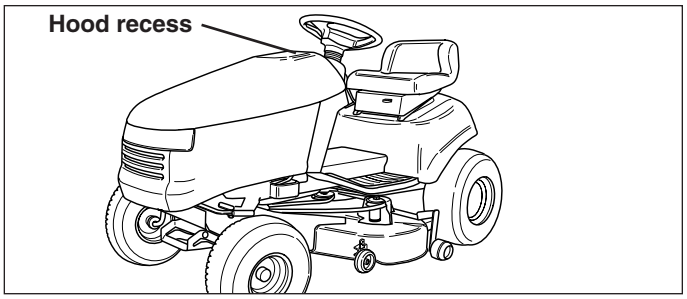


Figure 8. Gas Tank Located Under Hood

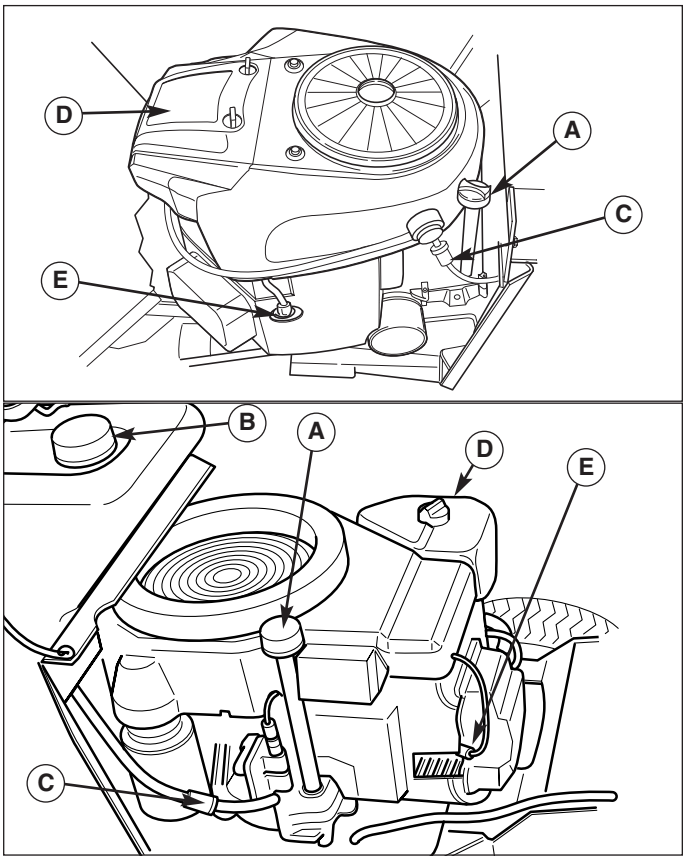


Figure 9. Engine Compartment

A. Oil Fill
B. Gas Tank
C. Fuel Filter
D. Air Filter
E. Spark Plug

PTO CLUTCH ADJUSTMENT CHECK

Service Interval: After 25 Hrs, Then Every 250 Hrs

Check the PTO clutch adjustment after the initial 25 hour break-in period and then after every 250 hours of operation–or if the clutch starts slipping or will not engage. Check and adjust the clutch using the procedure outlined in the Adjustments section of this manual.

ENGINE MAINTENANCE

Refer to the engine owner's manual for all engine maintenance procedures and recommendations.

LUBRICATION

Service Interval: Every 25 Hours

Lubricate the unit at the locations shown in Figures 10-12 as well as the lubrication points listed. Generally, all moving metal parts should be oiled where contact is made with other parts. Keep oil and grease off belts and pulleys. Wipe surfaces clean before and after lubrication.

Grease:

- steering linkage
- foot pedal
- mower linkage
- transmission idler assembly pivot
- rear axle shafts (remove wheel hubs)

Use grease fittings when present. Automotive lithium grease is recommended.

Oil:

- control linkage
- seat adjustment assembly
- brake linkage
- mower deck height adjustment linkage
- manual lift lever

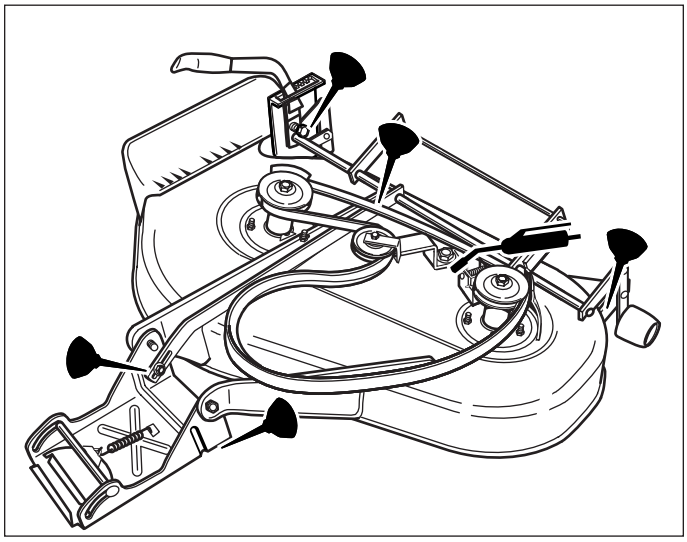


Figure 10. Lubricate Deck Linkage (38" shown)

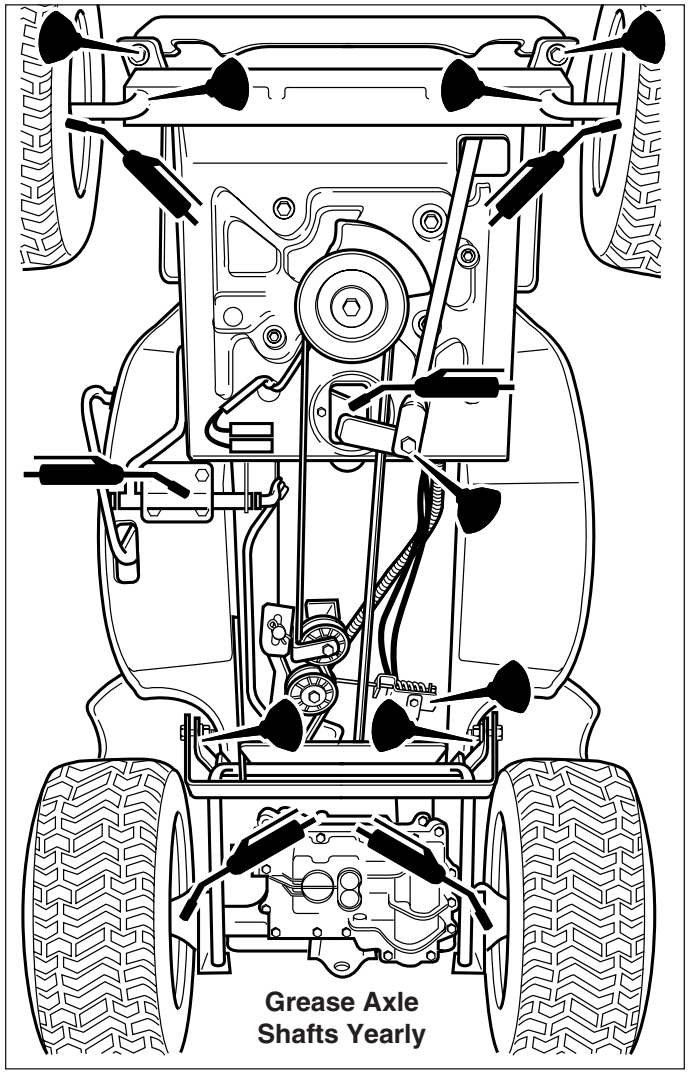


Figure 11. Lubricating Tractor

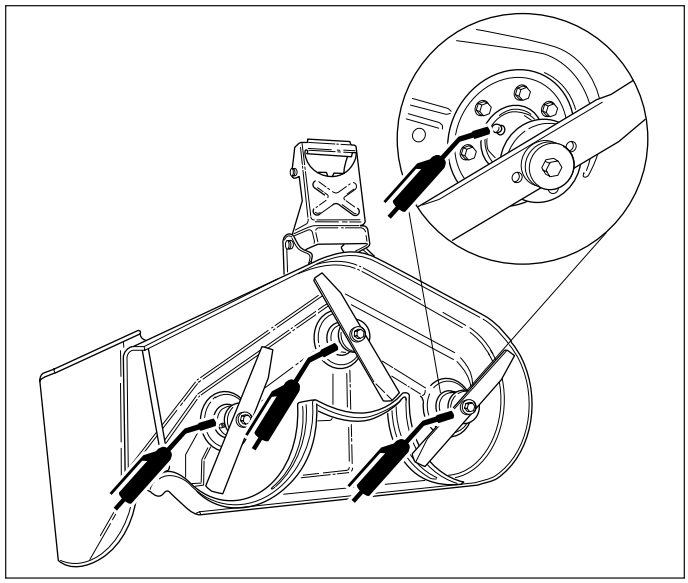


Figure 12. Arbor Lubrication Points

LUBRICATE REAR AXLE SHAFTS

⚠ WARNING

PREVENT SERIOUS INJURY OR DEATH FROM FALLING UNIT

Always use a properly working lifting device with a capacity suitable for the weight of the unit being serviced.
Always use a jack stand to support the unit while performing service, and chock remaining wheels to prevent the unit from rolling off the supports. Never work under or around an elevated unit that is not properly supported and secured in position with wheel chocks.

Service Interval: Yearly

We recommend removing the rear wheel hubs and lubricating the axle shafts yearly. This prevents the wheel hubs from seizing onto the axle shaft and makes future service easier.

1. Turn off the ignition, turn off the PTO, engage the parking brake, and block the front tires.
2. Using a jack or chain hoist positioned at the center of the rear frame, carefully jack the unit up until the rear tires are approximately 1" - 2" (2.5-5cm) off the ground.

NOTE: For overall unit stability during service, do not jack rear end higher than required for wheel removal.

3. Support the rear of the unit on jackstands positioned under the rear frame.

NOTE: Your axle assembly may differ slightly from the assembly pictured: the quantity of washers is adjusted on a tractor by tractor basis during assembly to allow a small amount of axle end-play.

4. Remove the hardware retaining the wheel assembly to the axle and lubricate the axle shaft using anti-seize compound or lithium grease.
5. Reinstall the components in reverse order of disassembly and lower the unit. Be sure the key (A, Figure 13) is in place in the axle keyway.

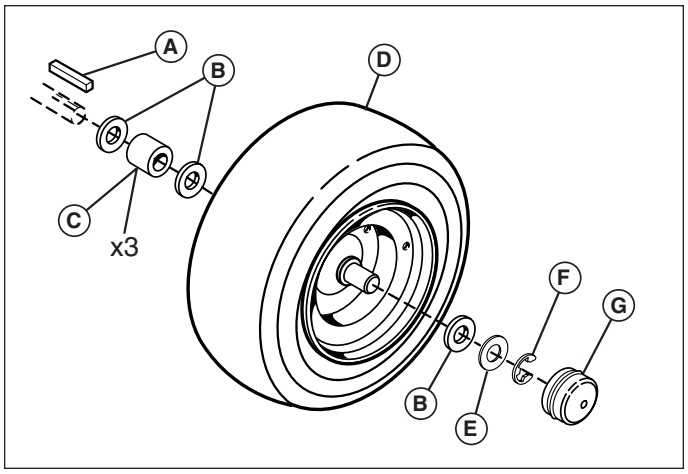


Figure 13. Rear Wheel (Models with Axle Caps)

A. Key
B. Large Washers
C. Spacer
D. Wheel Assembly
E. Small Washer (A.R.)
F. E-Ring
G. Hub Cap

TRANSMISSION IDENTIFICATION

Several service procedures within this book are identified by, and vary by, transmission type. To determine what transmission is in your tractor, check the identification tag attached to the axle of the transmission (Figure 14), or check your tractor's parts book.

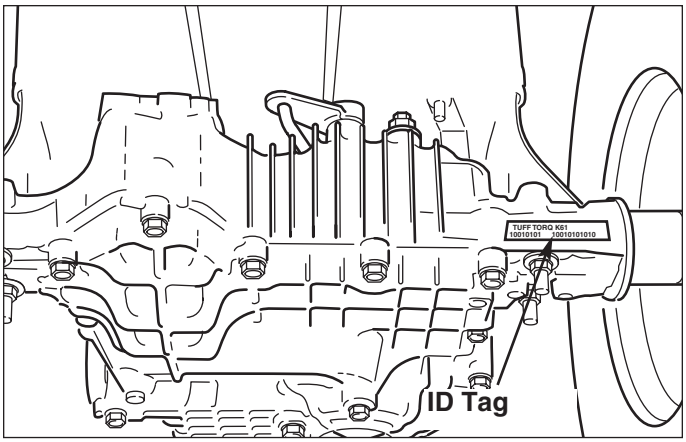


Figure 14. Transmission ID Tag Location

TRANSMISSION MAINTENANCE

K46 Maintenance

The K46 is a sealed unit and does not require regular maintenance. If the transmission lacks drive or is excessively noisy, it may need to be purged. See TRANSMISSION PURGING in the Troubleshooting, Adjustments, & Service Section.

BATTERY MAINTENANCE

⚠ WARNING

Be careful when handling the battery. Avoid spilling electrolyte. Keep flames and sparks away from the battery.

When removing or installing battery cables, disconnect the negative cable FIRST and reconnect it LAST. If not done in this order, the positive terminal can be shorted to the frame by a tool.

Cleaning the Battery and Cables

1. Disconnect the cables from the battery, negative cable(s) first (A, Figure 15).
2. Remove the battery and clean the compartment with a solution of baking soda and water.
3. Clean the battery terminals and cable ends with a wire brush until shiny.
4. Reinstall the battery and reattach the battery cables, positive first.
5. Coat the cable ends and battery terminals with grease or petroleum jelly.

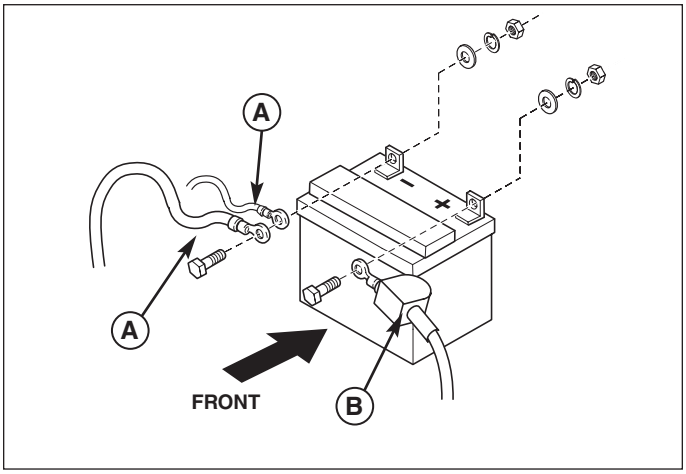


Figure 15. Battery
A. Negative Cable(s)
B. Positive Cable & Cover

⚠ WARNING

For your personal safety, do not handle the sharp mower blades with bare hands. Careless or improper handling of blades may result in serious injury.

⚠ WARNING

For your personal safety, blade mounting capscrews must each be installed with a hex/spline washer and spring washer, then securely tightened. Torque blade mounting capscrew to 45 - 55 ft. lbs. (61 - 75 N.m.)

SERVICING THE MOWER BLADES

Service Interval: Every 100 Hours or As Required

NOTE: Mower blades must be timed perpendicular to each other.

1. Remove mower deck (see "Mower Deck Removal").
2. See Figure 16. To remove blade for sharpening, use a block of wood to prevent blade rotation while loosening the capscrew.
3. **38" & 44" Mowers:** Remove the capscrew (D, Figure 18), spring washer (C), hex washer (B), and blade.

   40" Mowers: Remove the capscrew (A, Figure 19), spring washer (F), spline washer (G), alignment pin (E) and blade (D). Do not remove the blade adapter (C).
4. Use a file to sharpen blade to a fine edge. If blade is severely damaged, it must be replaced.
5. Balance the blade as shown in Figure 17. Center the blade's hole on a nail lubricated with a drop of oil. A balanced blade will remain level.
6. Reinstall the blade (Figures 18 & 19) with the tabs pointing up toward the mower deck as shown. Reinstall the alignment pin (E).
7. **38" & 44" Mowers:** Reinstall the hex washer (B, Figure 18), spring washer (C) and capscrew (D). Use a wooden block (A) to prevent blade rotation while tightening the capscrew (D) to 61-75 N.m (45-55 ft. lbs.).

   40" Mowers: Be sure the blades are positioned perpendicular to each other as shown in Figure 19. If not, perform the Mower Blade Timing procedure found in this section. Reinstall the spline washer (G), spring washer (F) and capscrew (A). Use a wooden block (B) to prevent blade rotation while tightening the capscrew (A) to 61-75 N.m (45-55 ft. lbs.).

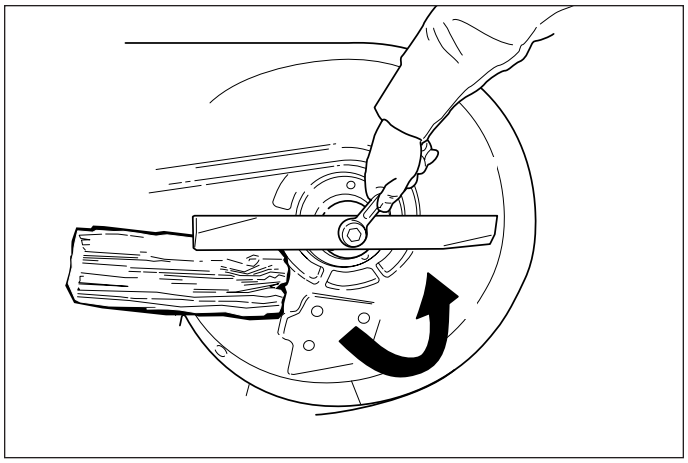


Figure 16. Blade Removal

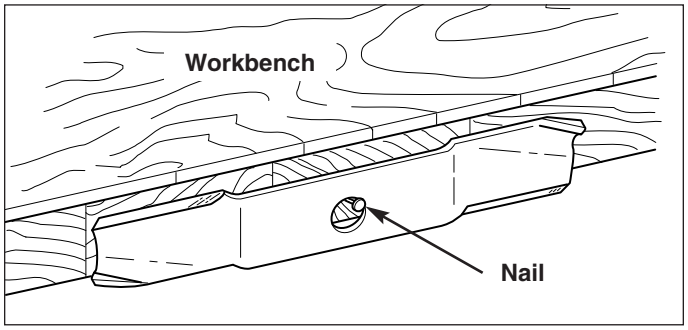


Figure 17. Balancing The Blade

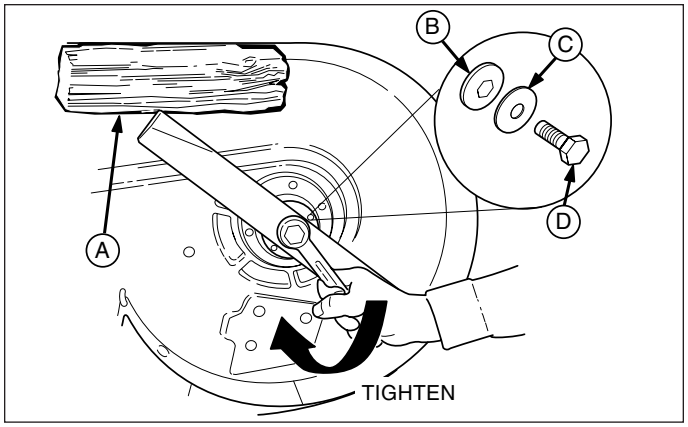


Figure 18. Installing The Blade - 38" & 44" Models
A. 4x4 Wood Block **C. Spring Washer**
B. Hex Washer **D. Blade Bolt**

CHECK MOWER BLADE TIMING - 40” MOWERS

Service Interval: Yearly

1. Turn the PTO to the off position, engage the parking brake, turn the engine off, and remove the key. Remove the mower deck (see “Mower deck removal”).
2. Turn the mower deck over and check the position of the blades. The blades must be positioned perpendicular to each other as shown in Figure 20. If not, proceed to step 3.
3. Use a block of wood (B, Figure 19) to prevent blade rotation while loosening the capscrew.
4. Remove the capscrew (A, Figure 19), spring washer (F), and spline washer (G).
5. Remove the alignment pin (E, Figure 19). Rotate the blade (D) manually until the blades are perpendicular to each other as shown in Figure 20. It may be necessary to remove and rotate the blade adapter (C) to align the blade hole and adapter hole.
6. Reinstall the alignment pin (E), spline washer (G), spring washer (F) and capscrew (A). Use a wooden block (B) to prevent blade rotation while tightening the capscrew (A) to 61-75 N.m (45-55 ft. lbs.).

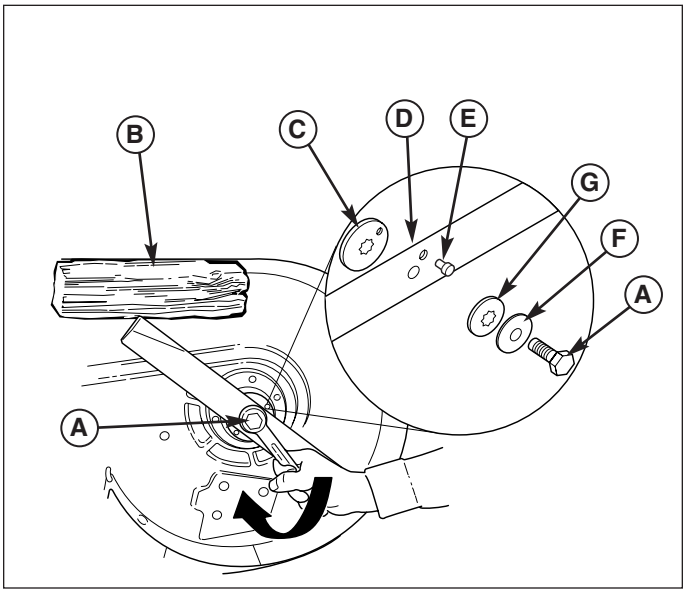


Figure 19. Blade Installation & Hardware
A. Blade Mounting Capscrew
B. 4x4 Wood Block
C. Blade Adapter
D. Blade
E. Alignment Pin
F. Spring Washer
G. Spline Washer

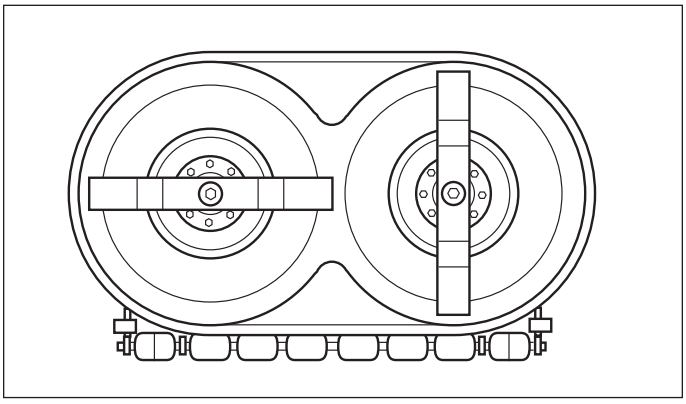


Figure 20. Check Blade Timing

CHECK MOWER BELT TENSION - 40” MOWERS

⚠ WARNING

Mower blades are sharp. For your personal safety, do not handle mower blades with bare hands. Careless or improper handling of blades may result in serious injury.

Service Interval: Yearly

1. Turn the PTO to the off position, engage the parking brake, turn the engine off, and remove the key. Remove the mower deck (see “Mower deck Removal”).
2. Remove the screws securing the belt covers. Remove the belt covers.
3. Loosen the idler assembly capscrew (A, Figure 21).
4. Using a 3/8" drive ratchet and extension (Figure 22), insert the square end of the extension into the square hole (D) and rotate the spring-loaded idler assembly (B, Figure 21) to relieve tension on the belt (C). .
5. Remove the belt (C) and inspect it for cracks, missing teeth and wear. Replace belt if worn or damaged.
6. Reinstall the belt (C). Releasing the idler assembly (B) allows the spring to automatically tension the cogged belt.
7. Tighten the idler assembly capscrew (A) and reinstall the belt covers.
8. Check the mower blade timing.

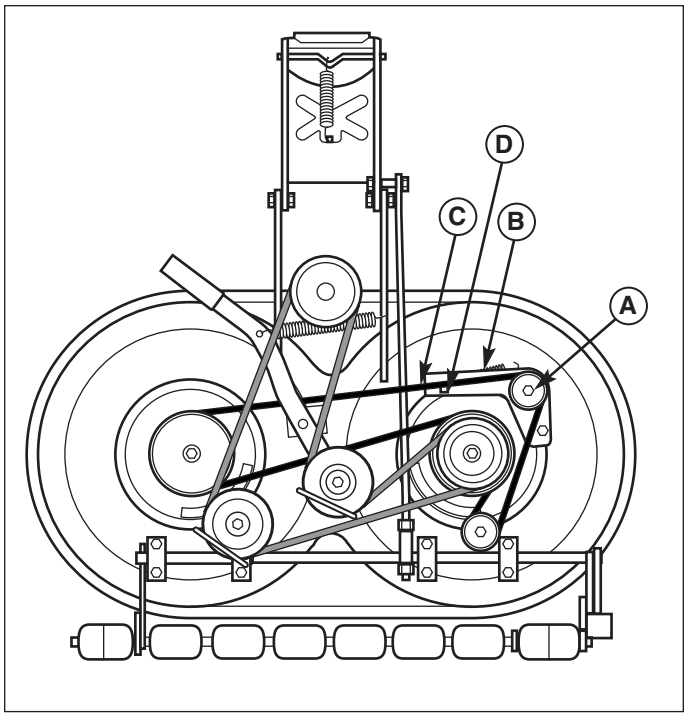


Figure 21. Mulching Deck (Belt Covers Removed)
A. Idler Assembly Capscrew
B. Spring-Loaded Idler Assembly
C. Belt
D. Square Hole

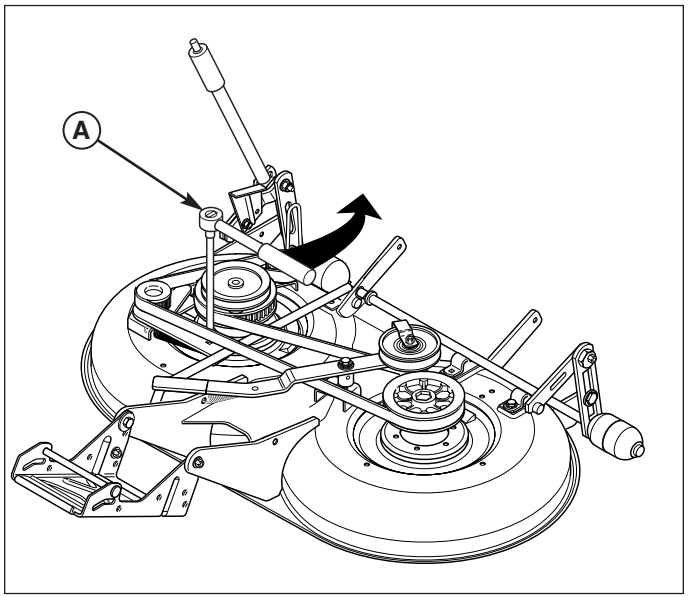


Figure 22. Release Cogged Belt Tension
A. 3/8” Ratchet and Extension

Notes

Troubleshooting, Adjustment, & Service

TROUBLESHOOTING

While normal care and regular maintenance will extend the life of your equipment, prolonged or constant use may eventually require that service be performed to allow it to continue operating properly.

The troubleshooting guide below lists the most common problems, their causes and remedies.

See the information on the following pages for instructions on how to perform most of these minor adjustments and service repairs yourself. If you prefer, all of these procedures can be performed for you by your local authorized dealer.

⚠ WARNING

To avoid serious injury, perform maintenance on the tractor or mower only when the engine is stopped and the parking brake engaged.

Always remove the ignition key, disconnect the spark plug wire and fasten it away from the plug before beginning the maintenance, to prevent accidental starting of the engine.

TROUBLESHOOTING THE TRACTOR

PROBLEM	CAUSE	REMEDY
Engine will not turnover or start.	1. Brake pedal not depressed.	Fully depress brake pedal.
	2. PTO (electric clutch) switch in ON position.	Place in OFF position.
	3. Cruise control engaged.	Move lever to Neutral position.
	4. Out of fuel.	If engine is hot, allow it to cool, then refill the fuel tank.
	5. Engine flooded.	Disengage choke.
	6. Circuit breaker tripped.	Wait one minute for automatic reset. Replace if defective.
	7. Battery terminals require cleaning.	See Battery Maintenance Section.
	8. Battery discharged or dead.	Recharge or replace.
	9. Wiring loose or broken.	Visually check wiring & replace broken or frayed wires. Tighten loose connections.
	10. Solenoid or starter motor faulty.	See your dealer.
	11. Safety interlock switch faulty	See your dealer.
	12. Spark plug(s) faulty, fouled or incorrectly gapped.	Clean and gap or replace. See engine manual.
	13. Water in fuel.	Drain fuel & refill with fresh fuel. Replace fuel filter.
	14. Gas is old or stale.	Drain fuel & refill with fresh fuel. Replace fuel filter.
Engine starts hard or runs poorly.	1. Fuel mixture too rich.	Clean air filter. Check choke adjustment
	2. Spark plug(s) faulty, fouled, or incorrectly gapped.	Clean and gap or replace. See engine manual.
Engine knocks.	1. Low oil level.	Check/add oil as required.
	2. Using wrong grade oil.	See engine manual.
Excessive oil consumption.	1. Engine running too hot.	Clean engine fins, blower screen and air cleaner. Clean radiator screen.
	2. Using wrong weight oil.	See engine manual.
	3. Too much oil in crankcase.	Drain excess oil.
Engine exhaust is black.	1. Dirty air filter.	Replace air filter. See engine manual.
	2. Choke closed.	Open choke.
Engine runs, but tractor will not drive.	1. Ground speed control pedals not depressed.	Depress pedals.
	2. Transmission release lever in “push” position.	Move into drive position.
	3. Drive belt is broken.	See Drive Belt Replacement.
	4. Drive belt slips.	See cause and remedy below.
	5. Parking brake is engaged.	Disengage parking brake.

Tractor Troubleshooting Cont.

Tractor drive belt slips.	1. Clutch/brake is out of adjustment.	See Adjustments Section.
	2. Pulleys or belt greasy or oily.	Clean as required.
	3. Belt stretched or worn.	Replace with new belt.
	4. Idler pulley pivot bracket "frozen" in declutched position.	Remove idler pulley bracket, clean and lubricate.
Brake will not hold.	1. Brake is incorrectly adjusted.	See Brake Adjustment.
	2. Internal brake worn.	See your dealer.
Tractor steers hard or handles poorly.	1. Steering linkage is loose.	Check and tighten any loose connections. See Steering Gear Adjustment.
	2. Improper tire inflation.	Check and correct.
	3. Front wheel spindle bearings dry.	Grease spindles. See Lubricating the Tractor.

TROUBLESHOOTING THE MOWER

PROBLEM	CAUSE	REMEDY
Mower will not raise.	1. Lift linkage not properly attached or damaged.	Attach or repair.
	2. Dirt in hydraulic lines.	Change hydraulic system filter.
	3. Brake pedal depressed.	Release brake pedal to power transmission.
Mower cut is uneven.	1. Mower not leveled properly.	See Mower Adjustment.
	2. Tractor tires not inflated equally or properly.	See Maintenance Section.
Mower cut is rough looking.	1. Engine speed too slow.	Set to full throttle.
	2. Ground speed too fast.	Slow down.
	3. Blades are dull.	Sharpen or replace blades. See Mower Blade Service.
	4. Mower drive belt slipping because it is oily or worn.	Clean or replace belt as necessary.
	5. Check PTO (Electric Clutch) Adjustment.	See Adjustments Section.
	6. Blades not properly fastened to arbors.	See Servicing the Mower Blades.
Engine stalls easily with mower engaged.	1. Engine speed too slow.	Set to full throttle.
	2. Ground speed too fast.	Slow down.
	3. Carburetor improperly adjusted.	See Engine Manual.
	4. Cutting height set too low.	Cut tall grass at maximum cutting height during first pass.
	5. Discharge chute jamming with cut grass.	Cut grass with discharge pointing toward previously cut area.
	6. Engine not up to operating temperature.	Run engine for several minutes to warm-up.
	7. Starting mower in tall grass.	Start the mower in a cleared area.
Excessive mower vibration.	1. Blade mounting screws are loose.	Tighten to 45-55 ft.lbs. (61-75 N.m.).
	2. Mower blades, arbors, or pulleys are bent.	Check and replace as necessary.
	3. Mower blades are out of balance.	Remove, sharpen, and balance blades. See Servicing the Mower Blades.
	4. Belt installed incorrectly.	Reinstall Correctly.
Excessive belt wear or breakage.	1. Bent or rough pulleys.	Repair or replace.
	2. Using incorrect belt.	Replace with correct belt.
Mower drive belt slips or fails to drive.	1. Idler pulley spring broken or not properly attached.	Repair or replace as needed.
	2. Belt stops out of adjustment.	Check belt stops.
	3. Mower drive belt broken.	Replace drive belt.
	4. PTO clutch out of adjustment.	Adjust PTO clutch.
Mower blades collide (40" Mower).	1. Blade shear pin broken.	Replace shear pin.

Troubleshooting, Adjustment, & Service

BATTERY CHARGING

⚠ WARNING

Keep open flames and sparks away from the battery; the gasses coming from it are highly explosive. Ventilate the battery well during charging.

A dead battery or one too weak to start the engine may be the result of a defect in the charging system or other electrical component. If there is any doubt about the cause of the problem, see your dealer. If you need to replace the battery, follow the steps under Cleaning the Battery & Cables in the Regular Maintenance Section.

To charge the battery, follow the instructions provided by the battery charger manufacturer as well as all warnings included in the safety rules sections of this book. Charge the battery until fully charged (until the specific gravity of the electrolyte is 1.250 or higher and the electrolyte temperature is at least 60° F). Do not charge at a rate higher than 10 amps.

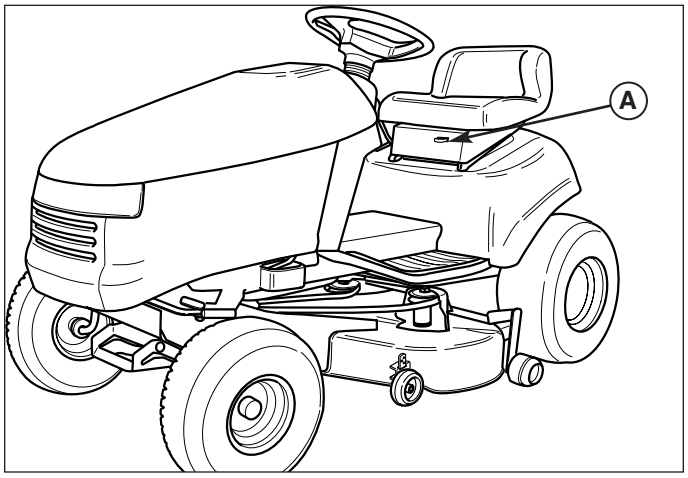


Figure 23. Seat Adjustment
A. Seat Adjustment Lever

⚠ WARNING

To avoid serious injury, perform adjustments only with engine stopped, key removed and tractor on level ground.

SEAT ADJUSTMENT

The seat can be moved forward and back by moving the lever (A, Figure 23) underneath the front of the seat, then positioning the seat as desired.

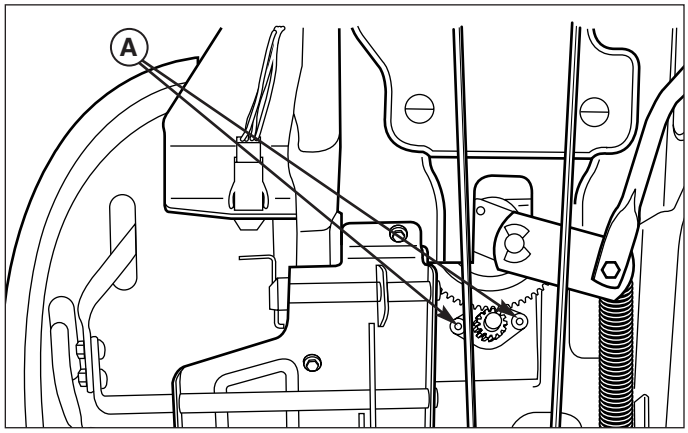


Figure 24. Steering Gear Adjustment
A. Nuts

STEERING GEAR ADJUSTMENT

If there is excessive slack in the steering system, the steering gear backlash can be removed.

1. See Figure 24. Locate the steering gear assembly on the underside of the tractor. Loosen the two nuts and adjust the bracket so the gear teeth are closely meshed.
2. Tighten nuts (A, Figure 24) to 36-44 ft. lbs. (49-59 Nm) after adjustment.

BRAKE & BRAKE SPRING ADJUSTMENT

1. Disengage the PTO, stop the engine, block the wheels, remove the ignition key, and engage the parking brake.
2. Remove the mower deck (see Mower Deck Removal).
3. Locate the brake spring (A, Figure 25) and adjustment nut (B).
4. With the parking brake engaged, measure the compressed spring length. The spring should be 1-11/16" - 1-3/4" (4.2cm - 4.4 cm) when compressed.

   If the spring is not within this range, turn the adjustment nut (B, Figure 25) to compress or release the spring.

   If this adjustment does not correct a braking problem, see your dealer.

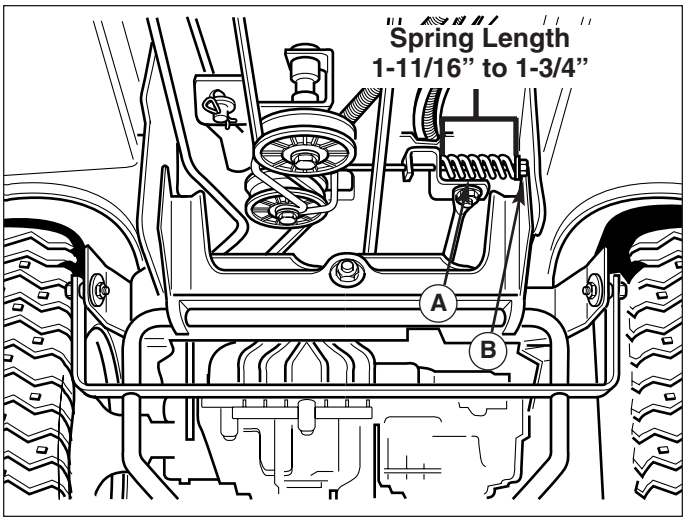


Figure 25. Brake Spring Adjustment
B. Nut **A. Spring**

PTO CLUTCH ADJUSTMENT

Check the PTO clutch adjustment after the initial 25 hour break-in period and then after every 250 hours of operation. Also perform the following procedure if the clutch is slipping or will not engage, or if a new clutch has been installed.

1. Remove key from ignition switch and disconnect spark plug wires to prevent the possibility of accidental starting while the PTO is being adjusted.
2. See Figure 26. Note the position of the 3 adjustment windows (A) in the side of the brake plate and the nylock adjustment nuts (B).
3. Insert a .012"-.015" (2,5-4mm) feeler gauge (C) through each window, positioning the gauge between the rotor face and the armature face as shown in Figure 27.
4. Alternately tighten the adjustment nuts (B, Figure 26) until the rotor face and armature face just contacts the gauge.
5. Check the windows for an equal amount of tension when the gauge is inserted and removed, and make any necessary adjustments by tightening or loosening the adjustment nuts.

NOTE: The actual air gap between the rotor and armature may vary even after performing the adjustment procedure. This is due to dimensional variations on component parts, and is an acceptable condition.

6. Check the mower blade stopping time. The mower blades and mower drive belt should come to a complete stop within five seconds after the electric PTO switch is turned off.
7. Perform the BLADE BRAKE CHECK found in the MAINTENANCE Section. Mower blades and mower drive belt should come to a complete stop within five seconds after electric PTO switch is turned off.

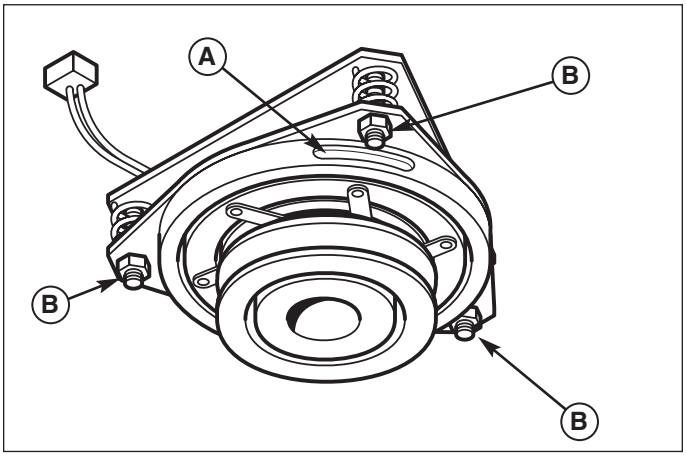


Figure 26. Adjust PTO Clutch
A. Window
B. Adjustment Nut

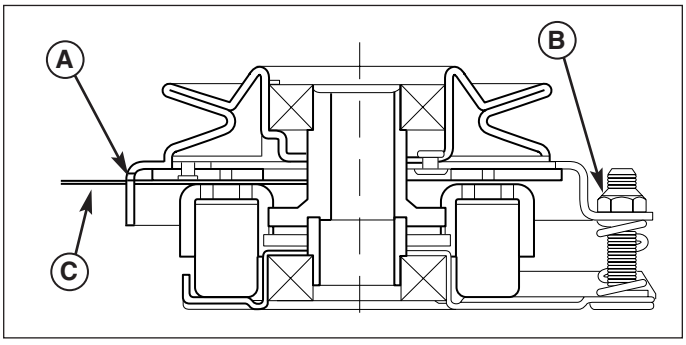


Figure 27. Adjust PTO Clutch
A. Window
B. Adjustment Nut
C. Feeler Gauge

⚠ WARNING

Before checking mower, shut off PTO and engine. Allow all moving parts to stop. Remove ignition key, then disconnect the spark plug wire and fasten it away from the spark plug.

MOWER ADJUSTMENTS

Leveling The Mower

If the cut is uneven, the mower may need leveling. Unequal or improper tire pressure may also cause an uneven cut. Make sure tire pressure is correct as specified in Checking Tire Pressure.

ALL MODELS

1. With the mower installed, place the tractor on a smooth, level surface such as a concrete floor. Turn the front wheels straight forward.
2. Check for bent blades and replace if necessary.
3. Disengage the PTO. Place the mower in mid-cut position. Arrange one of the mower blades so that it is pointing from side-to-side.
4. Measure the distance between the outside tips of each blade and the ground. If there is more than 1/8" (3mm) difference between the measurements on each side, proceed to step 5. If the difference is 1/8" (3mm) or less, proceed to step 6.
5. See Figure 28. Loosen the outside nut (A). Turn the eccentric nut (B) to raise or lower left-hand side of mower. When mower is level, hold the eccentric nut while tightening the outside nut.

NOTE: When using a turbo collection system, raise the discharge side of the mower approximately 1/4" to compensate for turbo assembly weight. Check level of cut grass and adjust the 1/4" measurement if necessary for a smooth even cut.

40" MOWER

6. Arrange the blades so they face front-to-back.
7. Measure the distance from the ground to front tip and rear tip of the left and right-hand blades.
8. Front tips should be 1/8"-1/4" higher. If not, proceed with steps 8 - 10.
9. See Figure 29. To raise front of mower deck, loosen front nut (A) and turn rear nut (B) against bracket (C).
10. To lower front of mower deck, loosen rear nut (B) and bracket (C) will move backwards to lengthen rod.
11. Re-check measurement before tightening front nut (A) against bracket.

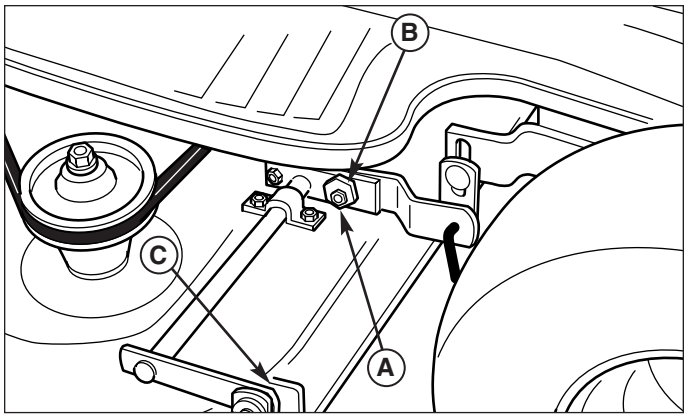


Figure 28. Side-to-Side Adjustment
A. Outside Nut **C. Taptite Screw**
B. Eccentric Nut

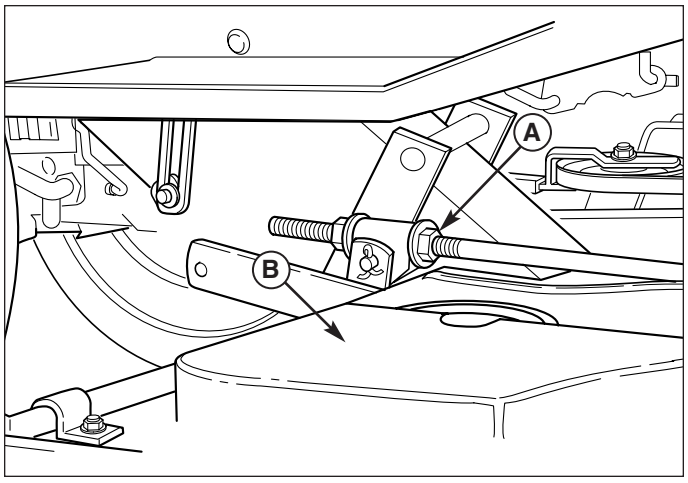


Figure 29. Front-to-Back Leveling Rod - 40"
A. Front Nut
B. Rear Nut

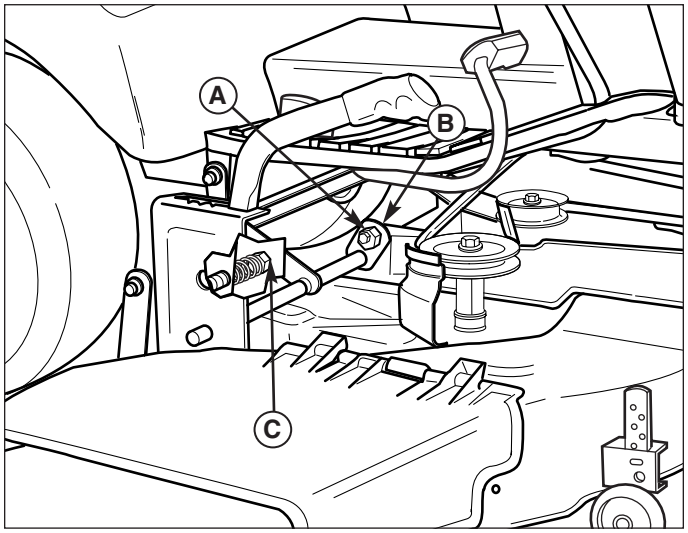


Figure 30. Front-to-Back Adjustment Nut - 38" & 44"
A. Outside Nut **C. Adjustment Nut**
B. Eccentric Nut

38" & 44" MOWERS

6. Arrange the blades so they face front-to-back
7. Measure the distance from the ground to the front and rear tips of each blade. The measurement should be equal for both blades. Front tips should be equal to rear tips or within 1/8" higher. If not, proceed to next step.

8.See Figure 30. Loosen the outside nut (A) and turn the eccentric nut (B) to raise or lower the rear of the deck. When the mower deck is level, hold the eccentric nut while tightening the outside nut.

NOTE: If mower handle drops out of cutting height quadrant, turn adjustment nut (C, Figure 30) clockwise to increase spring tension. DO NOT tighten nut all the way so that spring is solid.

MOWER BELT REPLACEMENT

38" Mowers

1. Park the tractor on a level surface. Disengage the PTO, turn off the engine and set the parking brake. Remove the key.
2. Remove the mower deck from the tractor. See Mower Installation & Removal in the Operation section.
3. Loosen the hardware securing the belt guides (A, Figure 31). Also loosen the idler pulley belt guide (B).
4. Remove the old belt and install the new belt over the pulleys as shown in Figure 31.
5. Tighten the belt guide hardware and idler pulley belt guide (B). The idler pulley belt guide should be at the mid-point of the belt wrap as shown.

44" Mowers

1. Park the tractor on a level surface. Disengage the PTO, turn off the engine and set the parking brake. Remove the key.
2. Remove the mower deck from the tractor. See Mower Installation & Removal in the Operation section.
3. Remove both belt covers.
4. Loosen the idler pulley bolt.
5. Remove the old belt and install the new belt over the pulleys as shown in Figure 32.
6. Tighten the idler pulley bolt.
7. Reinstall both belt covers.

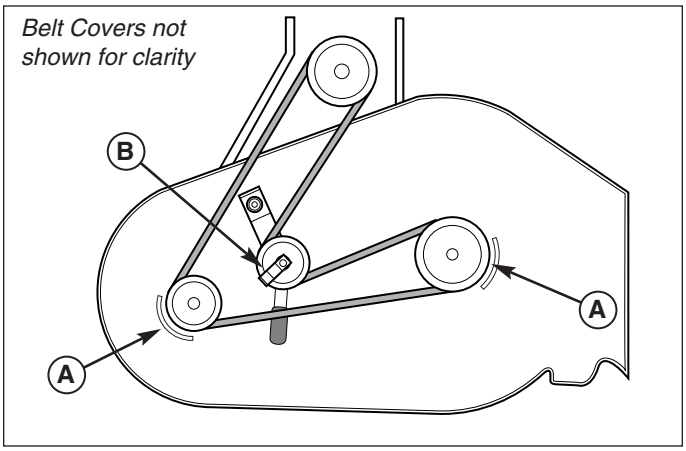


Figure 31. Mower Deck Belt Routing - 38" Deck
A. Belt Guides B. Idler Pulley Belt Guide

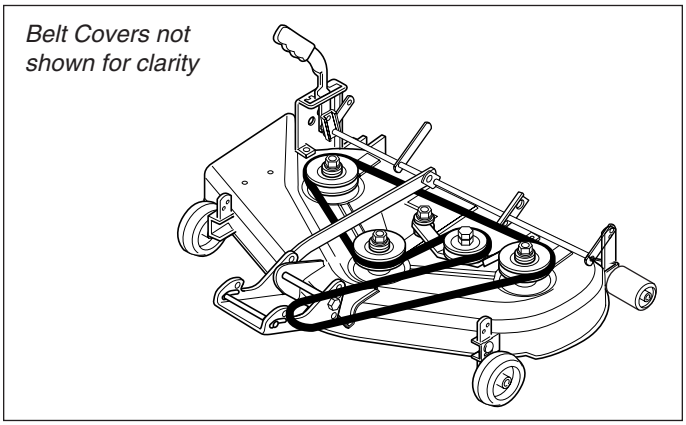


Figure 32. Mower Deck Belt Routing - 44" Deck

40” Mower PTO Belt Replacement

1. With the mower deck installed, park the tractor on a smooth, level surface such as a concrete floor. Disengage the PTO, engage the parking brake, shut the engine off, and remove the key.
2. Remove the mower deck (see “Mower deck removal”). Remove the belt covers.
3. Note the position of the idler pulley belt guides (E & F, Figure 33) when installed. Loosen the idler pulley capscrews and remove the belt from the idler pulleys (D & G).
4. Install the new belt (B) as shown. When the mower deck is installed on the tractor, the belt wraps around the PTO clutch pulley (A), backside idler pulley (D), mower deck drive pulley (C), and v-idler pulley (G) .
5. Return the idler pulley belt guides (E & F) to their original positions and tighten the idler pulley cap-screws.

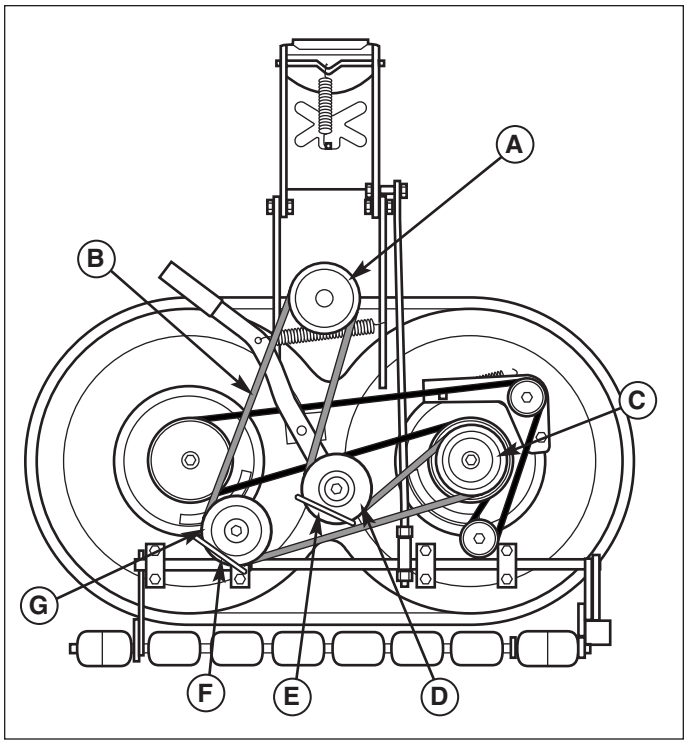


Figure 33. PTO Belt Replacement
A. Engine PTO Clutch Pulley
B. PTO Belt
C. Mower Deck Drive Pulley
D. Backside Idler Pulley
E. Belt Guide
F. Belt Guide
G. V-Idler Pulley

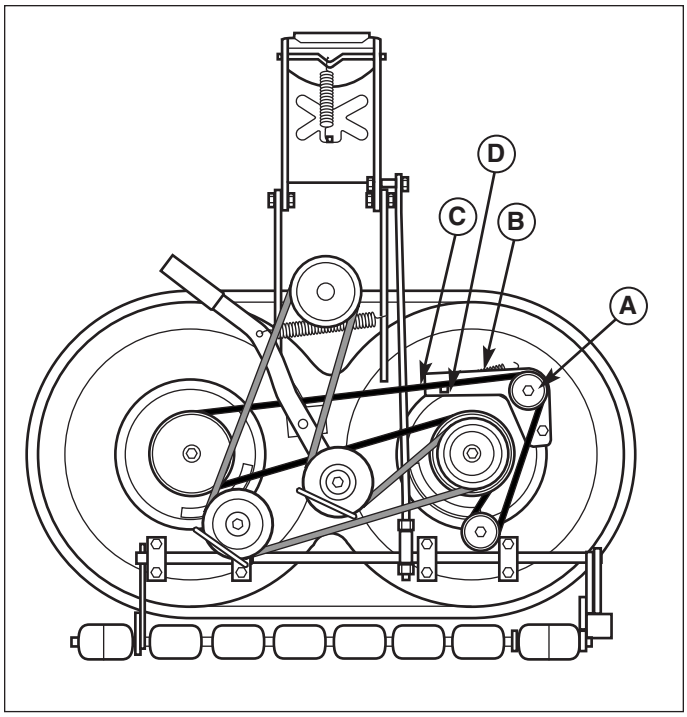


Figure 34. Mulching Deck (Belt Covers Removed)
A. Idler Assembly Capscrew
B. Spring-Loaded Idler Assembly
C. Belt
D. Square Hole

40” Mower Arbor Drive Belt Replacement

1. With the mower deck installed, park the tractor on a smooth, level surface such as a concrete floor. Disengage the PTO, engage the parking brake, shut the engine off, and remove the key.
2. Remove the mower deck (see “Mower Deck Removal”). Remove the belt covers.
3. Loosen the idler assembly capscrew (A, Figure 34).
4. Using a ratchet (A, Figure 35), insert the end of the extension into the square hole (D, Figure 34) and move the idler assembly (B, Figure 34) to relieve tension on the belt (C).
5. Remove the belt (C).
6. Install a new belt (C) on the pulleys as shown. Releasing the idler assembly (A) allows the spring to automatically tension the cogged belt.
7. Tighten the idler assembly capscrew (A). Reinstall the belt covers.
8. Check that the blades are positioned perpendicular to each other (see Figure 36). If not, perform the mower blade timing procedure found in the Regular Maintenance section.

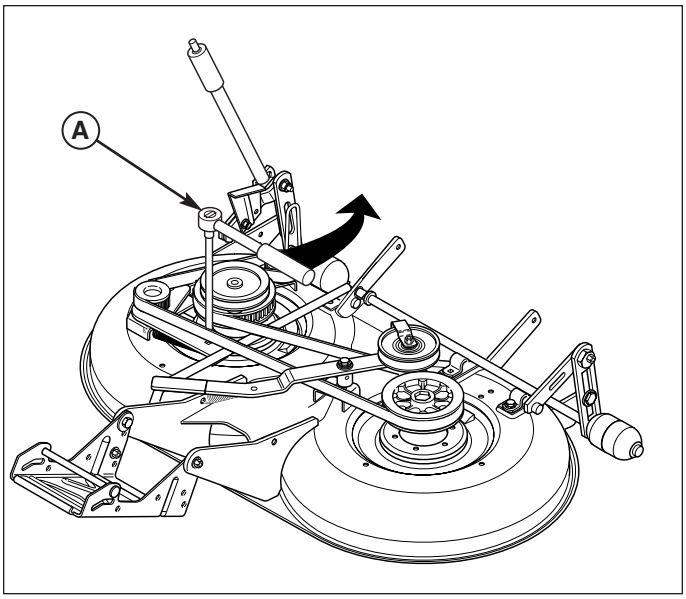


Figure 35. Release Cogged Belt Tension
A. 3/8” Ratchet and Extension

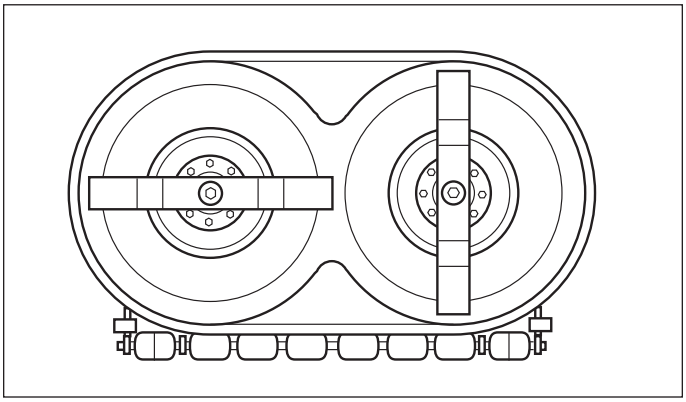


Figure 36. Mower Blade Timing

TRACTOR DRIVE BELT REPLACEMENT

IMPORTANT NOTE

To avoid damaging belts, do not pry belts over pulleys.

1. Park the tractor on a level surface. Disengage the PTO, turn off the engine and set the parking brake. Remove the key.
2. Remove the mower deck from the tractor. See Mower Installation & Removal.
3. Unplug the wiring harness from the PTO clutch. Remove the PTO clutch as shown in Figure 37.
4. Remove the drag link rear hardware. When reassembling, apply thread locking compound to nut before tightening.
5. Loosen the belt stop on the transmission pulley. Belt stop hardware is located on the inside of RH frame. Move belt stop out of the way. Belt stop should be positioned 1/8" from belt when new belt is installed and hardware is tightened.
6. Carefully slide belt over transmission pulley and remove from other pulleys.
7. Install new belt as shown in Figure 38.
8. Reverse steps 1-5.

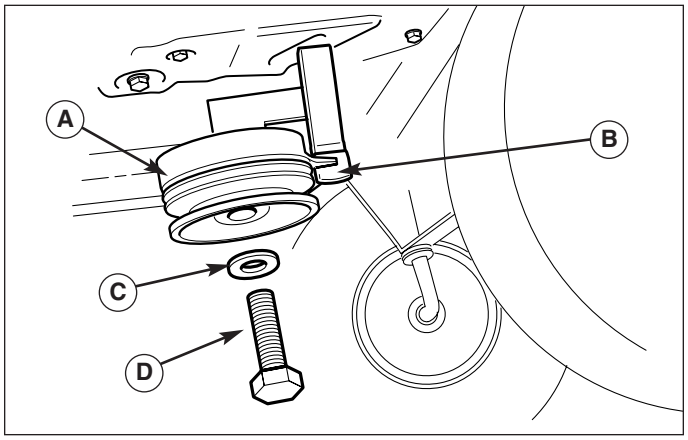


Figure 37. PTO (Electric Clutch) Assembly
A. PTO
B. Sleeve
C. Washer
D. Capscrew

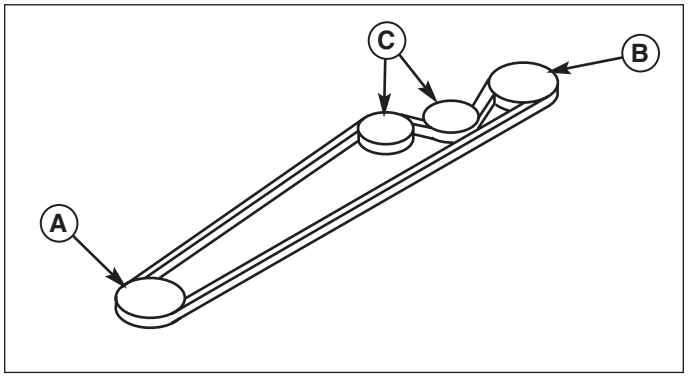


Figure 38. Drive Belt Routing - All Models
A. Engine Pulley
B. Transmission Pulley
C. Idler Pulleys

TRANSMISSION PURGING

Purge the transmission if the unit is excessively noisy or lacks drive in forward or reverse.

1. Elevate the rear end of the tractor using a chain hoist or floor jack. Support the rear of the unit using jackstands. Elevate just high enough for the wheels to clear the ground.
2. Activate the seat switch, depress the clutch / brake pedal, and start the engine. After the engine has started, set throttle to IDLE.
3. Release the brake pedal and fully depress the forward ground speed pedal.
4. While holding the forward ground speed pedal down, engage and disengage the transmission release valve lever (A, Figure 39) several times.
5. Fully depress the reverse ground speed pedal.
6. While holding the reverse ground speed pedal down, engage and disengage the transmission release valve lever (A) several times.
7. Engage the transmission release valve lever and stroke the transmission from full forward to full reverse several times.
8. Lower the tractor and test run for several minutes.

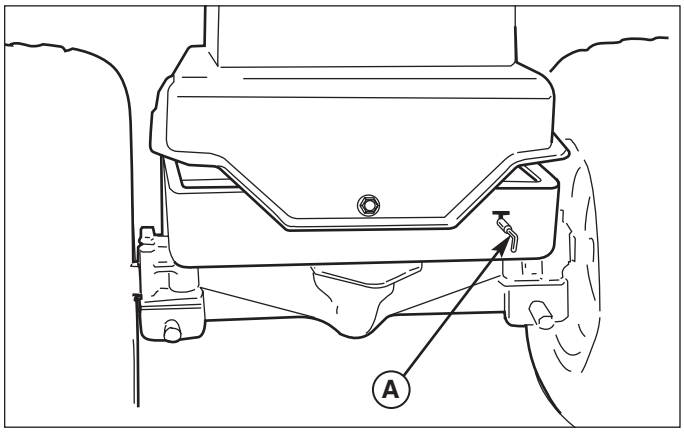


Figure 39. Transmission Release Lever
A. Transmission Release Lever

Specifications

NOTE: Specifications are correct at time of printing and are subject to change without notice.

**Actual sustained equipment horsepower will likely be lower due to operating limitations and environmental factors.*

ENGINE:

18* HP

Make	Briggs & Stratton
Model	INTEK, 31H777
Horsepower	18 @ 3600 rpm
Displacement	30.59 Cu. in (501 cc)
Electrical System	12 Volt, 16 amp. Alternator, Battery: 230 CCA
Oil Capacity	48 Oz. (1.4 L)

18* HP

Make	Briggs & Stratton
Model	Vanguard, 356777
Horsepower	18 @ 3600 rpm
Displacement	34.7 Cu. in (570 cc)
Electrical System	12 Volt, 16 amp. Alternator, Battery: 230 CCA
Oil Capacity	56 Oz. (1.6 L)

18* HP

Make	Kohler
Model	Command, CV492S
Horsepower	18 @ 3600 rpm
Displacement	29.9 Cu. in (490 cc)
Electrical System	12 Volt, 15 amp. Alternator, Battery: 230 CCA
Oil Capacity	2 Qt. (1.9 L)

CHASSIS:

Fuel Tank Capacity	2.0 Gallons (7.5 L)
Rear Wheels	Tire Size: 20 x 8-8 Turf Type Inflation Pressure: 10-12 psi (82-103 kPa)
Front Wheels	Tire Size: 15 x 6.50-6 Inflation Press.: 12-15 psi (82-103 kPa) Bearings: Sintered Iron with Grease Fittings

TRANSMISSION:

Type	Hydrostatic Tuff Torq K46
Hydraulic Fluid	10w 30 Premium Engine Oil
Speeds	Forward: 0-5.6 MPH (9.0 km/h)
@ 3400 rpm	Reverse: 0-3.0 MPH (4.6 km/h)
Continuous Torque	170 ft. lbs.
Output	
Drawbar Rating	227 lbs. (103 Kg)
Maximum Weight on Axle	675 lbs.

DIMENSIONS

Overall Length	68 in (172 cm)
Overall Width	36 in (92 cm)
Height	At Steering Wheel: 41 in (104 cm) To Top of Engine Cover: 34 in (86 cm)
Wheel Base	50 in (127 cm)
Weight (approx.)	
Net	371 lbs. (168 kg) w/44” mower 463 lbs. (210 kg)

Parts and Accessories

Replacement Parts

Replacement parts are available from your authorized dealer. Always use genuine Simplicity Service Parts.

Maintenance Items

Many convenient and helpful service and maintenance items are available from you authorized dealer. Some of these items include:

Engine Oil
Touch-Up Paint
Grease Gun Kit
8 oz. Grease Tube
Tire Sealant
Degrimer/Degreaser
Gas Stabilizer

Optional Accessories

Snowthrower Cab
42” & 36” Single Stage Snowthrowers
42" Dozer/Snow Blade
Rear Wheel Weights
Tire Chains
Twin Bag Grass Catcher
Dump Cart
Hour Meter Kit
Gas Cans

TECHNICAL MANUALS

Additional copies of this manual are available, as well as fully illustrated parts lists. These manuals show all of the product’s components in exploded views (3D illustrations which show the relationship of parts and how they go together) as well as part numbers and quantities used. Important assembly notes and and torque values are also included.

For applicable manuals currently available for your model, contact our Customer Publications Department at 262-284-8519. Have the information listed in the box below available when phoning in your request. Technical manuals can be downloaded from www.simplicitymfg.com

Model: _____

Mfg. No.: _____

Your Name: _____

Address: _____

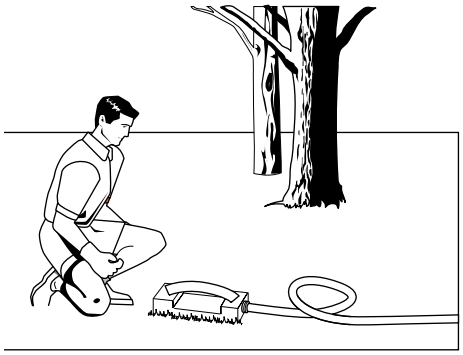
City, State, Zip: _____

Visa/Mastercard No.: _____

Card Expiration Date: _____

Lawn Care & Mowing Information

HOW AND WHEN TO WATER, FERTILIZE & AERATE



Most lawns are watered too often, but with too little water. However too much water can allow development of diseases with your lawn. **It is best to water the lawn only when necessary, and then to water it slowly, evenly, and deeply—imitating a slow, soaking rain.**

WHEN TO WATER YOUR LAWN

When the lawn begins to wilt, the grass's color dulls, or footprints stay compressed for more than a few seconds, the lawn is beginning to dry out, and needs additional moisture. The best time to water is early morning to allow the water to soak deeply into the lawn and reduce the amount that evaporates in the hot afternoon sun.

HOW TO WATER YOUR LAWN

The best method of watering a lawn is to imitate a slow, soaking rain, applying about 1 inch of water.

HOW TO FERTILIZE YOUR LAWN

Fertilizing with a slow-release fertilizer provides missing nutrients which help create slow, even growth. Remember that over-fertilizing can cause harm, and that most fertilizing should be applied in the spring so that it will release into the lawn through the summer.

AERATING YOUR LAWN

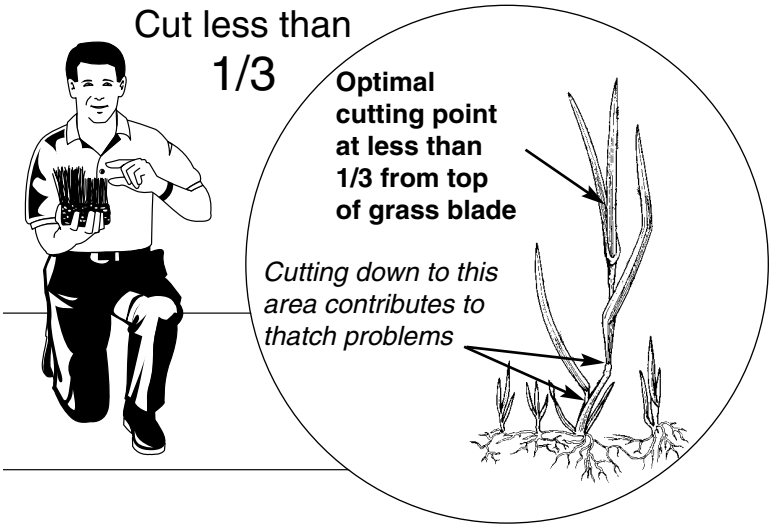
Consider aerating your lawn in spring. Using an aerator to remove cores of soil from the lawn increases the speed of clipping decomposition and encourages deeper root growth by opening up the soil and permitting greater movement of water, fertilizer and air.

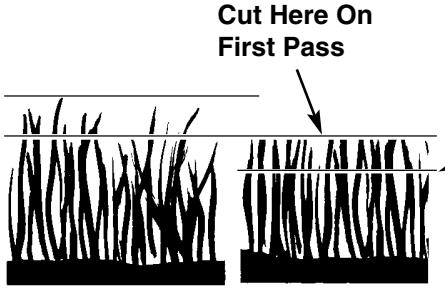
HOW HIGH TO MOW THE GRASS

Cutting the grass too short causes weak, thin grass plants, which are easily damaged by dry periods and pests.

Letting grass grow a bit longer—especially when it is hot and dry—reduces heat build-up, preserves needed moisture and protects the grass from heat damage and other problems.

Cutting off too much at one time shocks the plant's growth system and weakens the grass plants. **A good rule of thumb is the 1/3 rule: to cut no more than one third of the grass height, and never more than 1 inch at a time.**

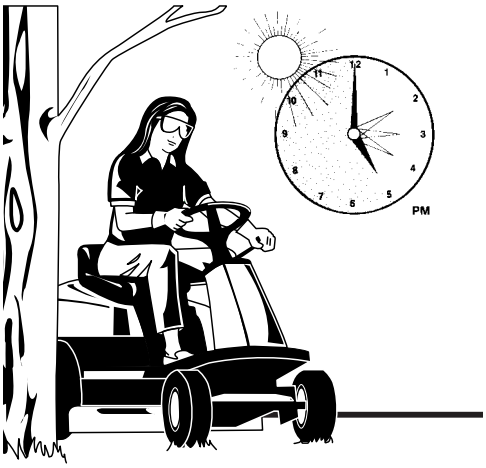

Cut less than
1/3
Optimal cutting point at less than 1/3 from top of grass blade
Cutting down to this area contributes to thatch problems



Tall Grass Requires Incremental Cutting

For extremely tall grass, set the cutting height at maximum for the first pass, and then reset it to the desired height and mow a second or third time.

Don't cover the grass surface with a heavy layer of clippings.



WHEN AND HOW OFTEN TO MOW

The time of day and condition of the grass greatly affect the results you'll get when mowing. For the best results, follow these guidelines:

- Mow when the grass is between 3"-4" (7,5-10 cm) high.
- Mow with sharp blades. Short clippings of grass one inch or shorter decompose more quickly than longer blades. Sharp mower blades cut grass cleanly and efficiently, preventing frayed edges which harm the grass.
- Mow at time of day when the grass is cool and dry. Late afternoon or early evening often provide these ideal mowing conditions.
- Avoid mowing after rain or even heavy dew, and never mulch when the grass is wet (moist grass does not mulch well, and clumps beneath the mower deck).

Note: Always operate the engine at full throttle when mowing.

PROPER MOWING SPEED

ENGINE SPEED & GROUND SPEED

Always operate the engine at full throttle when mowing. If you hear the engine slowing down, you are mowing too fast—maintaining a slower ground speed will improve the cutting efficiency of the blades and prevents many common cutting problems.

Select an appropriate ground speed for the thickness and height of the grass you are cutting (3rd gear or slower for manual gear models, or mid-range or slower for hydro models). If you hear the engine slowing down you are mowing too fast, use a slower ground speed.

HOW MUCH GRASS TO CUT OFF

Mow when the grass is 3"-4" inches (7,5-10cm) long. Do not cut off more that 1" (2.5cm) of grass in a single pass.